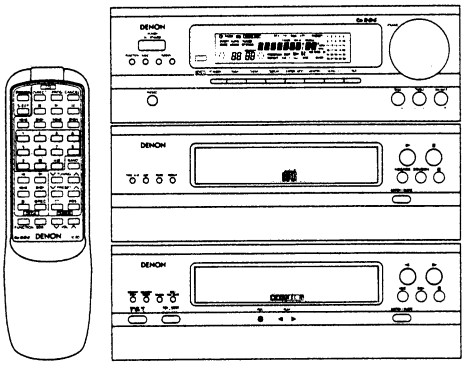
DENON Hi-Fi Personal Component System

Europe Model

SERVICE MANUAL

PERSONAL COMPONENT SYSTEM D-77

UNIT No. UDRA-77 (Stereo Receiver)
UNIT No. UCD-77 (Compact Disc Player)
UNIT No. UDR-77 (Cassette Tape Deck)



COMPACT DISC DIGITAL AUDIO

- **The D-77 Personal Component System consists of the following:**

Stereo Receiver Unit	UDRA-77
Remote Control Unit	RC-800
CD player Unit	UCD-77
Cassette Deck Unit	UDR-77

MAIN FEATURES

- **RDS reception (FM only)**
  RDS programs can be easily received (FM only).
- AM/FM 30-station random preset tuner
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 30 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B and C NR circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
  This function switches on the power with just a press of the CD or cassette deck play button.

BEFORE USING

Note the following points before using the D-77.

- **Moving the system**
  To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. Failing to do so may result in scratched CDs.
- **Before switching on the power**
  Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since this may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions	1
② FM Indoor Antenna	1
③ AM Loop Antenna	1
④ Remote Controller	1
⑤ R6P Batteries	2
⑥ System Connectors 1 & 2	2
⑦ AC Cord	1

NIPPON COLUMBIA CO., LTD.

GENERAL SECTION

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Only discs with the mark at the right can be played on this system.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

PACKING & ACCESSORIES PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	UDR A77	Receiver Unit		1
◉ 2	UCD 77	CD Player Unit		1
◉ 3	UDR 77	Cassette Deck Unit		1
◉ 4	505 0241 005	Cabinet Cover		1
◉ 5	503 9291 102	:Cushion		1
◉ 6	503 9292 004	:Top Cushion		1
◉ 7	501 9279 102	:Master Carton		1
8	GEN 7754	Envelope Sub Ass'y		1^{S}
8-1	505 9125 009	:Poly Cover	240×350	(1)
◉ 8-2	511 9434 009	Inst. Manual	E,G,F,IT,ES, NL,S,PO	(1)
8-3	394 0040 004	:Battery(R6P/UM-3) Ass'y		(1)
△ 8-4	206 2108 003	:AC Conn. with Plug	L=1.8 m	(1)
8-5	231 1914 003	Loop Antenna		(1)
8-6	395 0023 008	FM Ant. Ass'y		(1)
8-7	—	—		
8-8	204 6471 002	13 P System Connector		(1)
8-9	204 6316 015	15 P System Connector		(1)
◉ 9	499 9011 009	:Remote Control	RC-800	(1)

ADVARSEL:	**USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.**
VAROITUS!	**LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.**
VARNING–	**OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.**

SPECIFICATIONS

■ **Receiver (UDRA-77)**

- **Tuner**

Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB)
FM Stereo Separation:	40 dB (1 kHz)

- **Amplifier**

Rated Output Power:	30 W + 30 W (40 Hz to 20 kHz, 6 ohm)
Jacks:	3.5 mm headphone jack
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PHONO: Input jacks AUX/DAT: Input jacks, recording output jacks PROCESSOR: Processor input/output jacks
Dimensions (max.):	273 (W) × 97 (H) × 323 (D) mm (10-48/64" × 3-13/16" × 12-23/32")
Weight:	5.6 kg (12 lbs 5 oz)
Power Supply:	AC 230 V, 50Hz
Power Consumption:	95 W

■ **CD Player (UCD-77)**

Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	273 (W) × 97 (H) × 295 (D) mm (10-48/64" × 3-13/16" × 11-39/64")
Weight:	2.6 kg (5 lbs 12 oz)

■ **Cassette Deck (UDR-77)**

Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome and metal tapes
Dimensions (max.):	273 (W) × 97 (H) × 295 (D) mm (10-48/64" × 3-13/16" × 11-39/64")
Weight:	2.9 kg (6 lbs 6 oz)

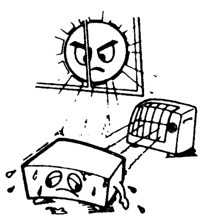
■ **Remote Control Unit (RC-800)**

Type:	Infrared pulse
Number of Buttons:	40
Dimensions (max.):	54.5 (W) × 183 (H) × 18.5 (D) mm (2-3/16" × 7-9/16" × 7/9")
Weight:	100 g (Approx. 4.6 oz) (including batteries)

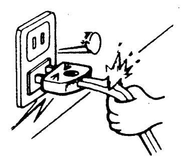
* Maximum dimensions include controls, jacks, and covers.
(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

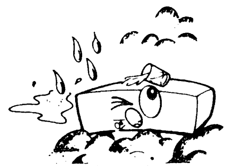
NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION / NOTE SULL'USO



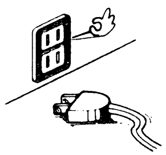
- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.



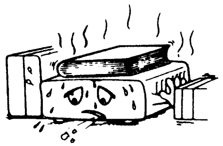
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.



- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.

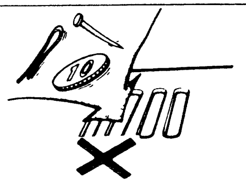


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.



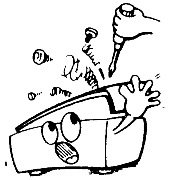
*(For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.



- Do not let foreign objects in the set
- Keine fremden Gegenstande in das Gerat kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil
- E' importante che nessun oggetto e inserito all'interno dell'unità.

- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Beruhrung kommen
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.



- Never disassemble or modify the set in any way
- Versuchen Sie niemals das Gerat auseinander zu nehmen oder auf jegliche Art zu verandern
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre
- Non smontate mai, nè modificate l'unità in nessun modo.

CAUTION / VORSICHT / ATTENTION / AVVISO

- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.
- Si de la fumée sort de la chaine ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocate immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

"SERIAL NO. (UDRA-77) (UCD-77) (UDR-77)

PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PARA LECTORES DE ESPAÑOL	PAGINA 2bis
VOOR NEDERLANDSTALIGE LEZERS	PAGINA 2bis
FÖR SVENSKA LÄSARE	SIDA 2bis
PARA LEITORES PORTUGUESES	PÁGINA 2bis

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

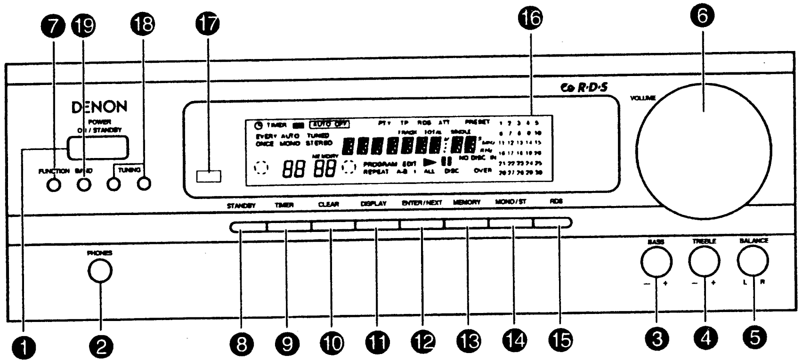
VARNING– OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

"CLASS 1
LASER PRODUCT"

FRONT PANEL / FRONTPLATTE / PANNEAU AVANT / PANNELLO ANTERIORE
PANEL FRONTAL / VOORPANEEL / FRAMSIDA / PAINEL FRONTAL

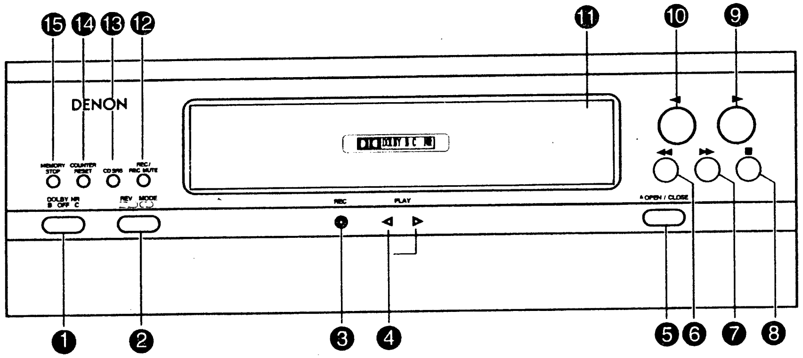
RECEIVER
RECEIVER
RECEPTEUR
RICEVITORE

RECEPTOR
ONTVANGER
RECEIVER
RECEPTOR


⑦ ⑲ ⑱ ⑰ ⑯ ⑥
DENON
POWER
ON / STANDBY
FUNCTION
BAND
TUNING
R·D·S
VOLUME
TIMER
AUTO OFF
PTY TP RDS ATT PRESET
EVERY AUTO TUNED
ONCE MONO STEREO
TRACK TOTAL SINGLE
MEMORY
PROGRAM EDIT
REPEAT A-B 1 ALL DISC
NO DISC IN
OVER
STANDBY
TIMER
CLEAR
DISPLAY
ENTER/NEXT
MEMORY
MONO/ST
RDS
PHONES
BASS
TREBLE
BALANCE
– +
– +
L R
① ② ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ③ ④ ⑤

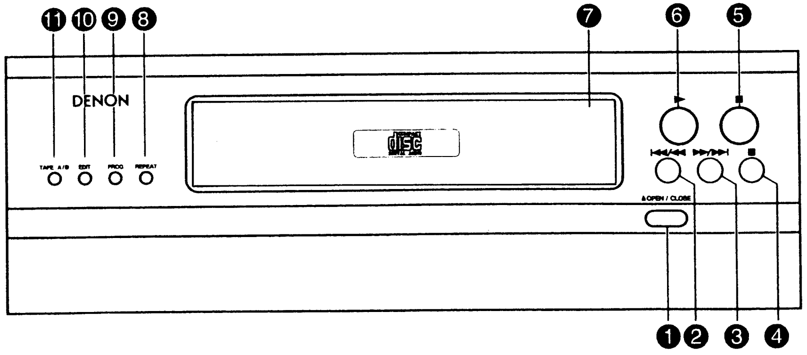
CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE

PLATINA DE CASSETTE
CASSETTEDECK
KASSETTDÄCKET
NOMES DAS PEÇAS E FUNÇÕES


⑮ ⑭ ⑬ ⑫ ⑪ ⑩ ⑨
DENON
MEMORY STOP
COUNTER RESET
CD SRS
REC / REC MUTE
DOLBY NR
B OFF C
REV MODE
REC
PLAY
▲OPEN / CLOSE
DOLBY B C NR
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE

REPRODUCTOR DE CD
CD-SPELER
CD-SPELAREN
LEITOR DE DISCOS COMPACTOS


⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤
DENON
TAPE A/B
EDIT
PROG
REPEAT
COMPACT DISC DIGITAL AUDIO
▲OPEN / CLOSE
① ② ③ ④

- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.
- Como ayuda a un mejor entendimiento del método de funcionamiento, las ilustraciones utilizadas en este manual puede diferir del sistema real.
- Als bijkomende hulp om de bedieningsmethode beter te begrijpen, is het mogelijk dat de afbeeldingen die in deze handleiding zijn gebruikt verschillen van het eigenlijke systeem.
- Illustrationerna i bruksanvisningen hjälper dig förstå de olika funktionerna. Studera dem noga. (Vissa illustrationer kan skilja sig lite grann från din apparat.)
- Como ajuda para uma melhor compreensão do método de funcionamento, as ilustrações utilizadas neste manual podem diferir do verdadeiro sistema.

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⑥ System Connectors 1 & 2	2
⑦ AC Cord	1

1 MAIN FEATURES

- **RDS reception (FM only)**
  RDS programs can be easily received (FM only).
- AM/FM 30-station random preset tuner
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 30 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B and C NR circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on function**
  This function switches on the power with just a press of the PRESET CALL and CD or cassette deck play button. The power also turns on automatically when the PRESET button and the number buttons in the tuner section of the remote control unit are pressed.

2 BEFORE USING

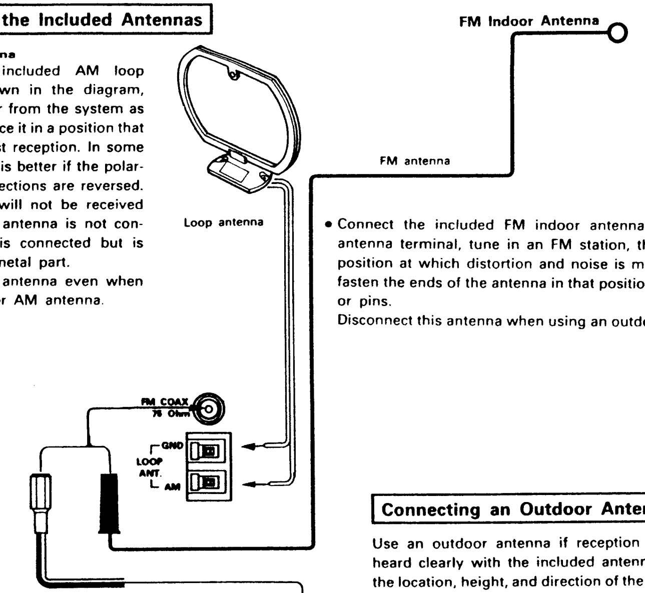
Note the following points before using the D-77

- **Moving the system**
  To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. Failing to do so may result in scratched CDs.
- **Before switching on the power**
  Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since this may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

3 ANTENNA CONNECTIONS

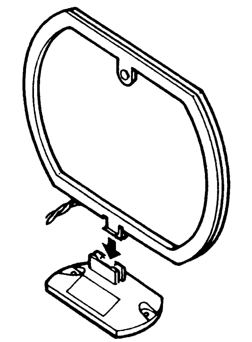
Connecting the Included Antennas

AM Loop Antenna
Assemble the included AM loop antenna as shown in the diagram, separate it as far from the system as possible, and place it in a position that provides the best reception. In some cases, reception is better if the polarities of the connections are reversed. AM broadcasts will not be received well if the loop antenna is not connected or if it is connected but is located near a metal part.
Attach the loop antenna even when using an outdoor AM antenna.



- Connect the included FM indoor antenna to the FM antenna terminal, tune in an FM station, then find the position at which distortion and noise is minimum and fasten the ends of the antenna in that position using tape or pins.
  Disconnect this antenna when using an outdoor antenna.

Assembling the Loop Antenna

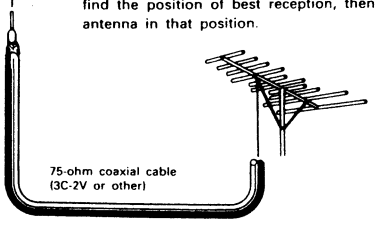


- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.

- Separate the FM and AM antenna wires from the system connector wires.

Connecting an Outdoor Antenna

Use an outdoor antenna if reception cannot be heard clearly with the included antenna. Change the location, height, and direction of the antenna to find the position of best reception, then fix the antenna in that position.



- Connect the outdoor antenna using 75-ohm coaxial cable. This will help shield the antenna from external noise.

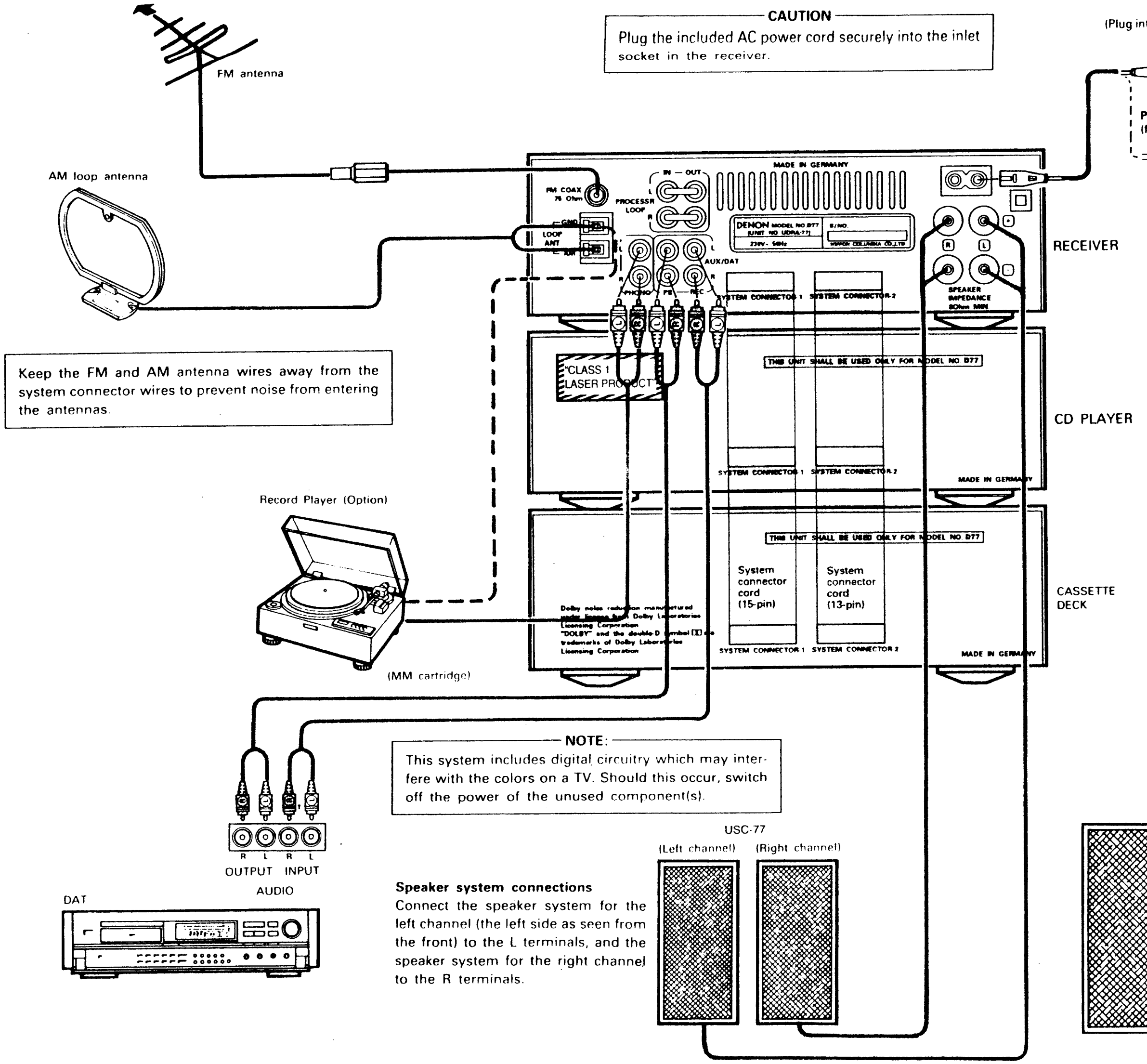
Places for Installing Outdoor Antennas

- Install the outdoor antenna facing a broadcast station's transmission antenna.
  When surrounded by buildings or hills, place the antenna in the location which provides best reception and try changing the direction of the antenna to obtain optimum reception.
- Do not install the antenna under power lines.
  It is extremely dangerous for the antenna to come into contact with a power line.
- Install away from roads and train tracks to prevent noise from cars and trains.
- Do not install the antenna too high, as it may be hit by lightning.

4 CONNECTIONS

CAUTION

Plug the included AC power cord securely into the inlet socket in the receiver.

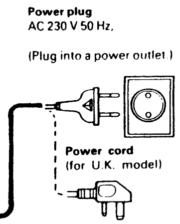

FM antenna
AM loop antenna
FM COAX 75 Ohm
GND
LOOP ANT
AM
PROCESSR LOOP
IN — OUT
L
R
MADE IN GERMANY
DENON MODEL NO. D77 (UNIT NO. UDRA-77)
230V~ 50Hz
S/NO.
NIPPON COLUMBIA CO.,LTD
AUX/DAT
PHONO
PB
REC
SYSTEM CONNECTOR 1
SYSTEM CONNECTOR 2
SPEAKER IMPEDANCE 8Ohm MIN
RECEIVER
"CLASS 1 LASER PRODUCT"
THIS UNIT SHALL BE USED ONLY FOR MODEL NO. D77
CD PLAYER
Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation
System connector cord (15-pin)
System connector cord (13-pin)
CASSETTE DECK
Record Player (Option)
(MM cartridge)
R L R L
OUTPUT INPUT
AUDIO
DAT
USC-77
(Left channel)
(Right channel)

Keep the FM and AM antenna wires away from the system connector wires to prevent noise from entering the antennas.

NOTE:

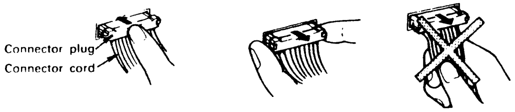
This system includes digital circuitry which may interfere with the colors on a TV. Should this occur, switch off the power of the unused component(s).

Speaker system connections
Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, and the speaker system for the right channel to the R terminals.


Power plug
AC 230 V 50 Hz.
(Plug into a power outlet.)
Power cord
(for U.K. model)

Connecting the System Connector Cord

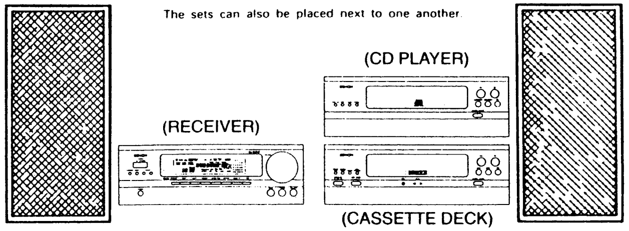
When connecting the system connector cord, press on the center of the connector plug until you hear a click.
When disconnecting the system connector cord, press the sides of the connector plug towards the middle and pull.


Connector plug
Connector cord

Note that disconnecting by pulling on the cord can damage it.

- Do not plug the power cord into the outlet until all connections have been completed. Connect properly as illustrated in the diagram.
- Check the left and right channels, then properly connect the left speaker's terminals to the amplifier's L terminals and the right speaker's terminals to the amplifier's R terminals.
- Insert the plugs securely. Incomplete connections can cause noise.
- When the power cord has been disconnected from the power outlet, wait about 5 seconds before plugging it back in.
- Note that grouping connection cords together with power cords or setting them near power transformers can cause hum or other noise.
- Note that if the input jacks selected with the FUNCTION button are open (if a component is not connected), there might be leakage of the reproduced sound of a component connected to another set of input jacks.
- Stack preferably in the following order: receiver (on top), CD player (middle), cassette deck (underneath). Otherwise interference may occur.

The sets can also be placed next to one another.


(CD PLAYER)
(RECEIVER)
(CASSETTE DECK)

CAUTION:

System operation is not possible and the power cannot be turned on and off unless all system connector cords, speaker cords and pin-plug cords are connected.

5 PART NAMES AND FUNCTIONS

RECEIVER

❶ **POWER ON/STANDBY switch**
When pressed once, the power is turned on and the display lights. Also, this power switch can be used to turn the power of all the units on and off.

❷ **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.

❸ **BASS control**
Use this control to adjust the bass.

❹ **TREBLE control**
Use this control to adjust the treble.

❺ **BALANCE control**
Use this control to adjust the balance of the volume between the left and right channels. The volume is the same for the left and right channels when the control is at the center.

❻ **VOLUME control**
This control adjusts the overall volume. Turn clockwise (↷) to increase the volume, counterclockwise (↶) to decrease it.

❼ **FUNCTION button**
Use this to select the program source.
The selection changes in the order of TUNER, TAPE, CD, AUX and PHONO.

NOTE: The auto function serves to automatically switch the function when the operation buttons are pressed on each unit.

Tuner: BAND button
CD: Play button (▶)
Deck: Play buttons (▶ and ◀)
(Note that the auto function will not operate unless a tape is loaded in the deck.)

❽ **STANDBY button**
Press this button to cause the timer to operate at the set time. When the timer has been set, pressing this button will light up the display's timer standby indicator (◷), and pressing it again will switch off the standby indicator. The timer will not function when the standby indicator is off.

❾ **TIMER button**
This is used to set the timer.

❿ **CLEAR button**
This button is used to change the current time setting or the contents of the set timer.

⓫ **DISPLAY button**
Use this switch to switch between the function and time display. For example, when the function is set to the tuner, the display switches between the reception frequency and time.
When RDS stations or stations for which you have written characters yourself and stored them in the memory are tuned in, press this button once to display the frequency, then press again to display the time.

⓬ **ENTER/NEXT button**
This is used when setting the timer, setting the current time, and when advancing to the next operation.

⓭ **MEMORY button**
This button is used when presetting FM and AM stations.

⓮ **MONO/ST**
(FM Stereo mute/mono) button
This button will not function when receiving AM broadcasts.
(For FM reception)
AUTO: Use this mode to receive FM broadcasts in
(mute): stereo.
("AUTO" appears on the display.) The muting circuit is activated to cut the hiss noise between stations.
MONO: In this mode, FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.

⓯ **RDS button**
Use this button to automatically tune to stations using the radio data system.

⓰ **DISPLAY**
The display indicates a wide variety of information including: functions and SDB of the amplifier, frequency and reception conditions of the tuner, number of tracks and time of the CD, and the counter of the tape deck.

⓱ **Remote control sensor**
The remote control unit is pointed toward this sensor and operated.

⓲ **TUNING UP and DOWN buttons**
Use these to tune in FM or AM stations and when setting the time and timer.

⓳ **BAND (FM/AM) button**
With each press, the band is switched in the order of FM, AM, FM and so on.

CASSETTE DECK

❶ **DOLBY NR selection switch**
Use this switch to select the Dolby NR mode: off, B type or C type. During playback, set this switch to the same mode in which the tape was recorded.

❷ **REV MODE switch**
Use this switch to set the reverse mode to one of the following modes: ⇄ (single side mode), ↩ (two-side mode), or ↻
(continuous mode). Refer to Page 16 for details.

❸ **REC LED**
This LED lights in the recording mode.

❹ **PLAY LEDs**
This LED lights in the play mode.

❺ **⏏ OPEN/CLOSE button**
Press this button to open and close the cassette tray. The button also works in the standby condition. When this button is pressed in the standby condition, the power is automatically switched on.

❻ **◀◀ (rewind) button**
Press this button to rewind the tape. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

❼ **▶▶ (fast-forward) button**
Press this button to fast forward the tape. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

❽ **■ (stop) button**
Press this button to stop the moving tape.

❾ **▶ (forward play) button**
Press this button to begin playback in the forward direction.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

❿ **◀ (reverse play) button**
Press this button to begin playback in the reverse direction.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

⓫ **Cassette tray**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

⓬ **REC/REC MUTE**
(recording) button
To record, press the REC/REC MUTE button (hold it in for at least 0.5 seconds), then press the ▶ play button only. If only the REC/REC MUTE button is pressed, the deck is set to the recording pause mode. If this button is pressed again, or pressed during recording, the recording mute mode is set for approximately 5 seconds, after which the deck is set to the recording pause mode.

Recording pause mode

When the play button of the CD player is pressed in the recording pause mode, the CD begins to be recorded.

⓭ **CD SRS (CD synchronized recording system) button**
Use this button for simple CD synchronized recording. Refer to Page 18.

⓮ **COUNTER RESET button**
Press this button to reset the tape counter on the tuner unit's display to "*0000*".

⓯ **MEMORY STOP button**
When this button is pressed and "MEMORY" is displayed on the receiver unit's display, when the ▶▶ or ◀◀ button is pressed the tape automatically stops at the point where the counter reads "*0000* ". (The search operation is performed if the ▶▶ or ◀◀ button is pressed during playback, so first press the STOP button, then press the ▶▶ or ◀◀ button.)

NOTE:

- After the power cord is plugged into an outlet, a mechanical sound is produced from the cassette deck when the power switch is pressed on the first time only. This is the sound of the cassette mechanism being set to the proper operating position, and is not a problem with the deck.

CD PLAYER

❶ **▲ OPEN/CLOSE button**
Press this button to open the disc tray. Press once to open the disc tray forward, then press again to close the disc tray. This button also operates in the standby mode.

❷ **I◀◀/◀◀ (automatic/manual search backward button)**
Press this button to move the pickup back to the beginning of the desired track.
Press in the play, stop, or pause mode to move back a number of tracks equal to the number of times the button is pressed.

❸ **▶▶/▶▶I (automatic/manual search forward button)**
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play, stop, or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
- The automatic search function is set if button ❷ or ❸ is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.
- Buttons ❷ and ❸ do not function in the pause mode.

❹ **■ Stop button**
Press this button to stop CD play.

❺ **II Pause button**
Press this button to stop CD play temporarily.
Press the play button to resume CD play.

❻ **▶ Play button**
Press this button to start playing the disc. If pressed when the disc tray is open, the disc tray closes and playback begins. Pressing this button in the standby mode automatically switches on the power and plays the disc.

❼ **Disc tray**
Compact discs are loaded to the disc tray.

❽ **REPEAT button**
Press this button for repeat play.

❾ **PROGRAM Button**
Use this button to play the desired tracks in the order you wish.

❿ **EDIT button**
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the length of the tape).

⓫ **TAPE A/B button**
Press this button during editing to switch the display between the display of program contents for tape side A and the display for tape side B.

RECEIVER DISPLAY

- RDS (Radio Data System)
When the RDS button is pressed, a station is searched for and automatically tuned in, the "RDS" indicator lights and the station's name is displayed on the frequency display.
- PTY (Program Type)
This indicator lights when the type of RDS program is specified.
- TP (Traffic Program)
"TP" lights when an RDS traffic information station is received.

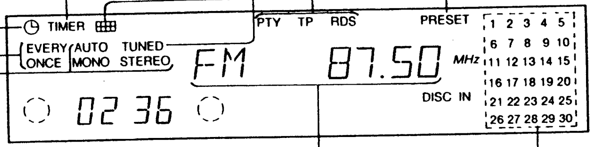
This lights to indicate that the timer is set.

Lights up when signals are received from the remote control unit.

This lights when the station is tuned in properly.

This lights when the timer is set.

Lights when a broadcast station is to be preset.
This flashes for about 10 seconds when the MEMO button is pressed during presetting.



These indicate the FM reception mode.
STEREO: Lights when receiving stereo broadcasts.
AUTO : Lights when the auto mode is set with the MONO/ST button.
MONO : Lights when the mono mode is set with the MONO/ST button.

Indicates the preset number.

The reception band (AM or FM), frequency, RDS program and service name, the time and the timer are displayed here.

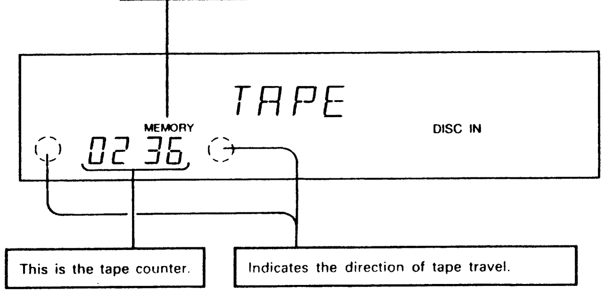
These light when the timer is operating.

NOTE:
- The " ◷ " of the timer standby display will not light up unless the current time and the timer have been set.

CASSETTE DECK DISPLAY

- **This is displayed on the display of the receiver unit (UDRA-77)**

This lights when the memory stop function is turned on.



This is the tape counter.

Indicates the direction of tape travel.

USING THE TAPE COUNTER

- The counter is reset to "0000" when the tape is ejected and loaded, and when the COUNTER RESET button is pressed.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playback back a tape will be convenient when you search for a portion of the tape you would like to listen to or when you search for the next portion you would like to record.

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CD PLAYER DISPLAY

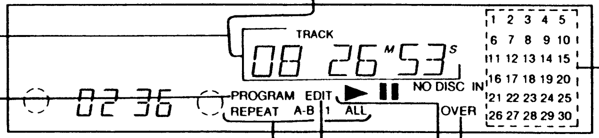
- **This is displayed on the display of the receiver unit (UDRA-77)**

Track number display
00 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- [[or]] is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

Time display
0000 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The elapsed playing time is displayed in the stop mode.
- The elapsed time for the track currently playing is displayed in the play and pause modes.
- The elapsed time for the programmed tracks is displayed in the program mode.

PROGRAM lights during the programmed selection mode.

Tape type and remaining time display
During the editing operation, C 00 lights and the tape time is displayed.



During the editing operation, EDIT A TAPE lights up, the remaining time for side A of the tape is indicated on the time section of the display, the track numbers set for side A light on the calendar section of the display, while the track numbers set for side B flash. When the TAPE A/B button is pressed, A goes off, B lights, and the remaining time and track numbers set for side B are indicated in the same way.

This lights when there are 31 or more tracks on the disc.

▶ PLAY lights when the disc is playing, and ❚❚ PAUSE lights when in the pause mode.

The indicators switch as follows when the REPEAT button is pressed in the play mode:
REPEAT 1: REPEAT 1 (single track repeat) The repeated track number lights on the music calendar.
REPEAT ALL: REPEAT ALL (all tracks repeat) The track numbers of the tracks on the disc light.
Third press: REPEAT A-
Fourth press: REPEAT A-B
Fifth press: No display
- When track 31 or higher is repeated in 1-track repeat, the TRACK number flashes.

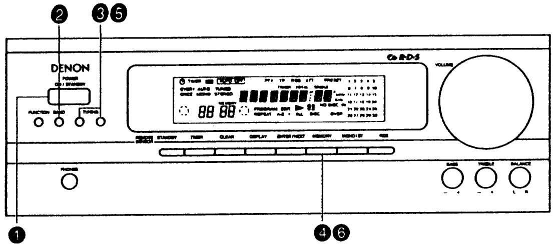
Music calendar display
This indicates the track numbers on the disc to a maximum of 30.
The track numbers go off after the corresponding tracks are played.
In the program mode, the track numbers of the programmed tracks are indicated to a maximum of 30.
All track numbers from 1 to 30 light when the disc data cannot be read properly.

- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

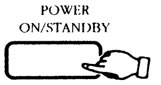
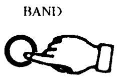
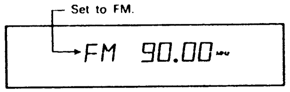
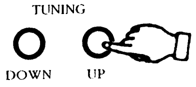
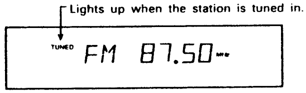
6 LISTENING TO RADIO BROADCASTS

(Check that connections are proper, referring to Pages 5)

TUNING

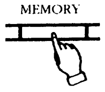
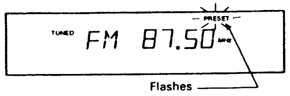
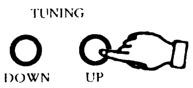
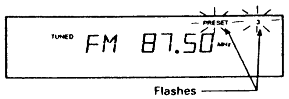
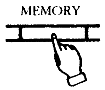
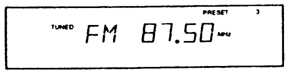


Example: Tuning to 87.50 MHz, FM

1	Set the VOLUME control to the minimum position, then press the POWER button of the receiver.		
2	Select the FM band with the BAND button.		
3	Use the UP and DOWN buttons to set the frequency to 87.50 MHz.		

Presetting FM and AM Stations

Example: Presetting the (currently tuned) FM 87.50 MHz to preset number 3

4	Press the MEMORY button. "PRESET" flashes for 10 seconds.		
5	Use the TUNING UP and DOWN buttons to call up the number to which you want to preset the station. Or, directly press the number buttons on the remote control unit. The preset number will flash.		
6	Press the MEMORY button while "PRESET" is flashing.		 set the preset number 3.

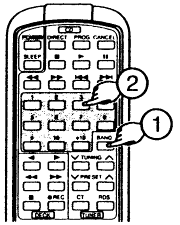
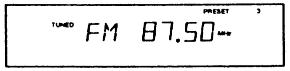
Up to 30 FM and AM stations can be preset at random using this procedure.
Note: The character writing mode is set if the MEMORY button is pressed in for over 3 seconds.

Auto Tuning

- When the TUNING buttons are pressed, the frequency changes in steps of 50 kHz for FM, 9 kHz for AM.
- If the TUNING UP or DOWN button is held in for more than 0.5 second, the frequency continues to change when the button is released. The next station is tuned in automatically and the tuning stops there. The auto tuning might not stop when a weak signal is received at the antenna. At this time the TUNED display will not light. To stop the auto tuning, press the UP or DOWN button again.

Listening to Preset Stations

Example: Listening to the FM station preset at number 3

1	Press the TUNER BAND button on the remote control unit.		
2	Press button "3" on the remote control unit.		

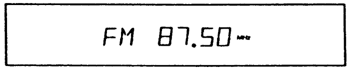
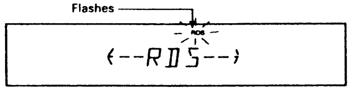
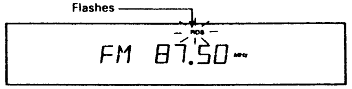
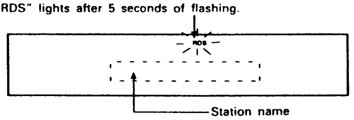
FM Stereo Reception

- When the MONO/ST button is pressed (which lights the AUTO indicators) and an FM stereo broadcast is received, the STEREO indicator lights and the station is received in stereo. If the MONO indicator is lit by pressing the MONO/ST button, the STEREO indicator goes off and the station is received in monaural.

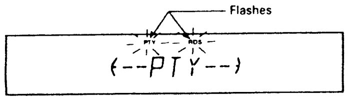
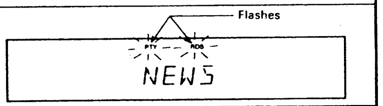
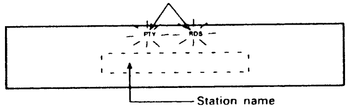
Notes on Presetting

- When an FM station is preset, the auto or monaural mode is also set, so check the display before presetting the station.
- If a station is preset to a number at which another station has previously been preset, the previous station is cleared and the new station is preset.
- If the power cord is unplugged, the preset memory is not cleared immediately, but will be cleared if the cord is left unplugged over a long period. Should this happen, preset the stations again.

Receiving RDS broadcasts (FM only)

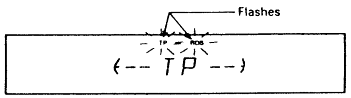
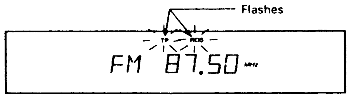
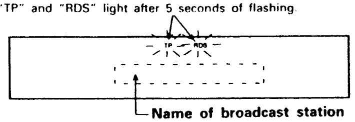
1	Press the BAND button and set the FM band.	
2	Press the RDS button once.	 "RDS" blinks
3	Press the TUNING UP or DOWN button.	 "RDS" blinks
4	The station is tuned in.	"RDS" lights after 5 seconds of flashing.  Once the sation is tuned in, "RDS" flashes for 5 seconds and the program service name is displayed. When another station is desired, press the UP or DOWN button of TUNING while "RDS" is flashing and start the tuning.
	NOTE: If no RDS station is found, " NO RDS " is displayed.	

PTY Search

1	Press the RDS button twice.	 ("PTY" and "RDS" flash, and "←– PTY –→" is displayed.)
2	Press the PRESET UP or DOWN button on the remote control unit to select the type of program. (One of the 15 types listed below can be selected.)	
3	Press the TUNING UP or DOWN button.	
4	The station is tuned in.	"PTY" and "RDS" light after 5 seconds of flashing.  Once the station is tuned in, "RDS" and "PTY" flash for 5 seconds and the program service name is displayed. When the UP or DOWN button of TUNING is pressed while "RDS" and "PTY" are flashing, tuning is started again.

NOTE: If no program of the specified type is found, "NO PROG" is displayed.

TP Search

1	Press the RDS button 3 times.	
2	Press the TUNING UP or DOWN button of TUNING.	
3	Broadcast reception.	"TP" and "RDS" light after 5 seconds of flashing.  Once the station is tuned in, "RDS" and "TP" flash for 5 seconds and the program service name is displayed. When the UP or DOWN button of TUNING is pressed while "RDS" and "TP" are flashing, tuning is started again.

NOTE: "NO PROG" is displayed when there is no traffic information broadcast station.

NOTE:

The D-77 is designed so that RDS broadcasts can be received. In some countries and areas, however, no RDS broadcasts are offered.

- "PTY" is a code which identifies the type of program.
- "TP" is a code which identifies the station providing the traffic information.
- "CT" is a signal providing time data in one minute units.
- Some stations which provide RDS broadcasts do not broadcast CT signals, in which case the time display cannot be corrected by pressing the CT button on the remote control unit.

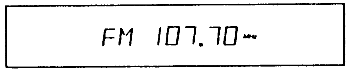
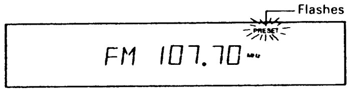
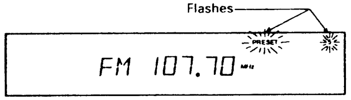
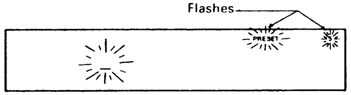
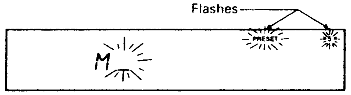
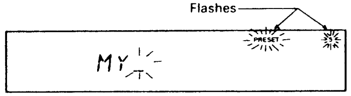
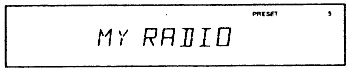
Programs

NEWS	(News)	VARIED	(Varied)
AFFAIRS	(Current Affairs)	POP M	(Pop Music)
INFO	(Information)	ROCK M	(Rock Music)
SPORT	(Sport)	MOR M	(M.O.R. Music)
EDUCATE	(Education)	LIGHT M	(Light Classics)
DRAMA	(Drama)	CLASSICS	(Serious Classics)
CULTURE	(Culture)	OTHER M	(Other Music)
SCIENCE	(Science)		

Writing Characters

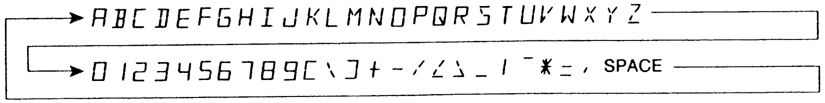
The D-77 includes a function for writing characters.

Example: Writing the characters "MY RADIO" for the station at FM 107.70 MHz and storing this at preset channel 5

1	Use the BAND button and the TUNING UP and DOWN buttons to display FM 107.70MHz.	
2	Press the MEMORY button for at least 3 seconds so that "PRESET" flashes on the display.	
3	Use the TUNING UP and DOWN buttons to select preset channel 5.	
4	Press the ENTER/NEXT button. The "-" begins to flash.	
5	Use the TUNING UP and DOWN buttons to select the character "M", then press the PRESET UP button on the remote control unit. The "-" stops flashing, and the "M" in the second place starts flashing.	
6	Use the TUNING UP and DOWN buttons to select the character "Y", then press the PRESET UP button on the remote control unit.	
7	Repeat this procedure to write "MY RADIO", then press the ENTER/EXIT button. "PRESET" stops flashing and the character writing mode is cancelled.	

The characters which can be written are shown below.

- The characters change in the direction of the arrow when the PRESET UP button is pressd, in the opposite direction when the PRESET DOWN button is pressed.
- The character sequence starts over from A each time a character is set.


A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9 [\ ] + - / < > _ | ¯ * = , SPACE

NOTES:

- The cursor can be moved to correct a character by pressing the PRESET button during the character wirting mode.
- If the frequency of the station for which characters have been written is the same as the frequency of a PS broadcasting station, the characters are rewritten by the PS signal.
- Characters can also be written in the same way when in the AM mode.

7 USING THE TIMER

Setting the Timer

- Be sure to set the current time.
- Regular timer: The power can be switched on and off once every day at the same time. (Wake-up music)
- Sleep timer: The power can be set to turn off in up to 60 minutes in steps of 10 minutes using the remote control unit. (Bedtime music)

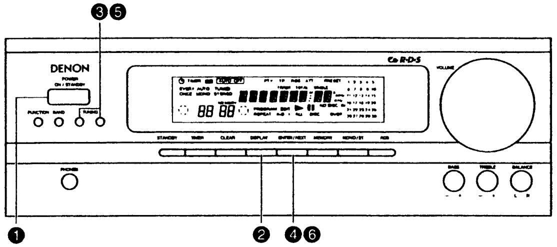
Be sure to preset stations before setting the timer.
Refer to "Presetting FM and AM Stations" on Page 9.

- Turn the standby switch off when not using the timer.

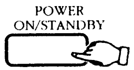
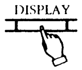
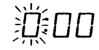
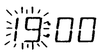
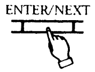
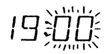
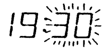
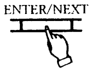
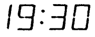
Power Failure

Should a power failure occur or if the power cord becomes unplugged from the power outlet, " 00:00 " will flash on the time display. If this happens, reset the current time.
(Reset the current time and timer settings. If " 00:00 " was displayed, also reset the stations preset on the tuner.)
The standby mark starts flashing if there is a power failure or the power cord is unplugged while the standby mark is lit. If this happens, reset the time and the timer. (If the display reads "00:0C", also reset the tuner's preset channels.)
To make the standby mark stop flashing, press the TIMER button, then press the TIMER or CLEAR button while " FUNC " is displayed.

Setting the Current Time (A 24-hour clock display is used.)

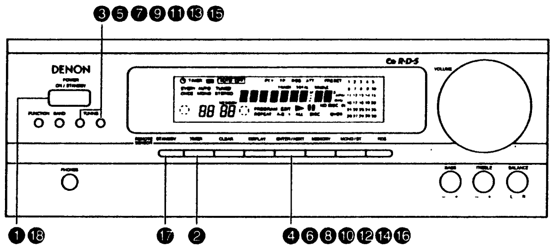


Example: Setting to 19:30 (7:30 p.m.)

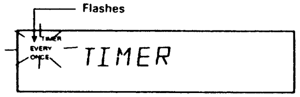
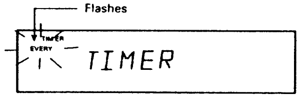
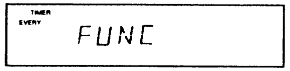
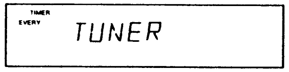
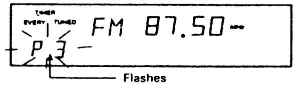
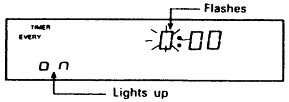
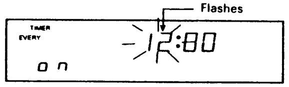
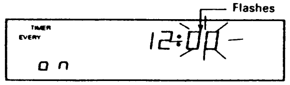
1	Press the POWER button of the receiver.		
2	Depress the DISPLAY button for 3 seconds or longer.		 The hour's place flashes. (All places flash if the time has already been set.)
3	Set the hours with the UP and DOWN buttons.	TUNING DOWN UP	 The set places flashes.
4	Press the ENTER/NEXT button.		 The minutes' places flashes.
5	Set the minutes with the UP and DOWN buttons.	TUNING DOWN UP	 The set places flashes.
6	Press the ENTER/NEXT button at the sound of a time signal. The time display lights steadily and the clock starts keeping the time.		 The display lights steadily and the clock starts to count from 0 seconds.

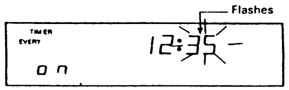
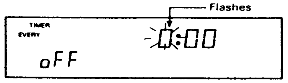
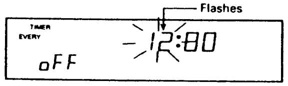
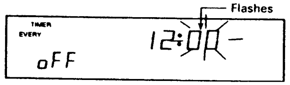
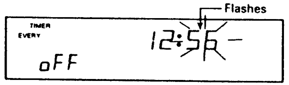
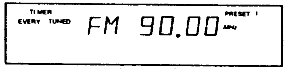
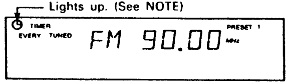
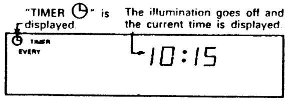
Setting the Timer

(Preset the FM and AM stations in advance)


③⑤⑦⑨⑪⑬⑮
DENON
①⑱
⑰②
④⑥⑧⑩⑫⑭⑯

Example: Setting the timer to turn on at 12:35 and off at 12:56.
90.00 MHz FM is being received on preset number "1".
87.50 MHz FM is set to preset number "3".

1	Press the POWER button.	POWER ON/STANDBY	 Flashes TIMER EVERY ONCE TIMER
2	Press the TIMER button.	TIMER	
3	Press the UP and DOWN buttons to display "EVERY".	TUNING DOWN UP	 Flashes TIMER EVERY TIMER
4	Press the ENTER/NEXT button.	ENTER/NEXT	 TIMER EVERY FUNC
5	Press the UP and DOWN buttons to display "TUNER".	TUNING DOWN UP	 TIMER EVERY TUNER
6	Press the ENTER/NEXT button.	ENTER/NEXT	 TIMER EVERY TUNED FM 87.50 MHz P 3 - Flashes
7	Use the UP and DOWN buttons to set the preset number 3.	TUNING DOWN UP	
8	Press the ENTER/NEXT button.	ENTER/NEXT	 Flashes TIMER EVERY 0:00 on Lights up
9	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.	TUNING DOWN UP	 Flashes TIMER EVERY 12:80 on
10	Press the ENTER/NEXT button.	ENTER/NEXT	 Flashes TIMER EVERY 12:00 on

11	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.	TUNING DOWN UP	 Flashes TIMER EVERY 12:35 on
12	Press the ENTER/NEXT button.	ENTER/NEXT	 Flashes TIMER EVERY 0:00 oFF
13	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.	TUNING DOWN UP	 Flashes TIMER EVERY 12:80 oFF
14	Press the ENTER/NEXT button.	ENTER/NEXT	 Flashes TIMER EVERY 12:00 oFF
15	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.	TUNING DOWN UP	 Flashes TIMER EVERY 12:56 oFF
16	Press the ENTER/NEXT button.	ENTER/NEXT	 TIMER EVERY TUNED FM 90.00 MHz PRESET 1
17	Press the STANDBY button.	STANDBY	 Lights up. (See NOTE) TIMER EVERY TUNED FM 90.00 MHz PRESET 1
18	Press the POWER button.	POWER ON/STANDBY	 "TIMER ◷" is displayed The illumination goes off and the current time is displayed TIMER EVERY 10:15

- When the STANDBY button is pressed and the " ◷ " mark is lit, the timer will function at the same times each day.
- To switch off the timer, press the STANDBY button and turn off the " ◷ " mark.

NOTE:

The timer standby mark " ◷ " will not light unless the current timer has been set. Should this be the case, set the current time, then press STANDBY the button.

NOTE:

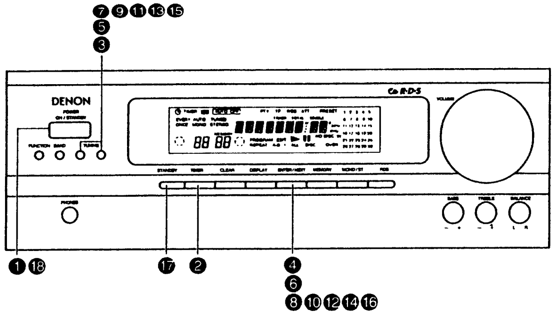
1) When there is an irregularity in the contents of the display or in the operation, unplug the power cord from the power outlet, then, while pressing down both the DOWN button of TUNING and the MEMORY button at the same time, plug the power cord into the power outlet again.

   All conditions will return to their initial settings and the display will appear normal. It will now be necessary to reset the presets, current time, and the timer setting time.

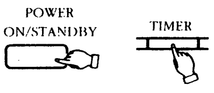
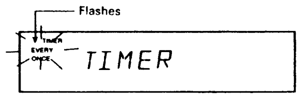
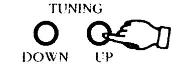
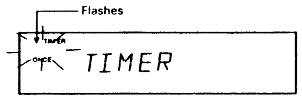
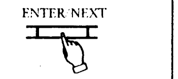
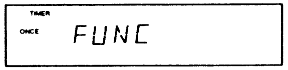
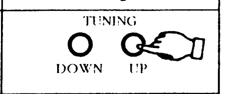
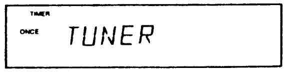
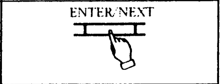
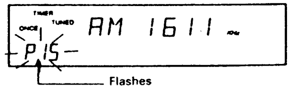
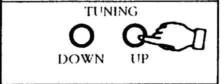
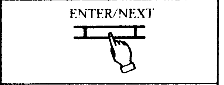
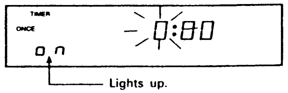
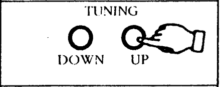
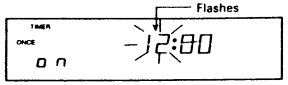
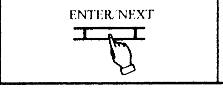
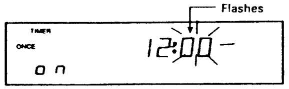
2) To enable remote control operation of this system, the AC power is always supplied to the system. Even when the POWER button has been switched off, the display of the tuner will continue to be lit dimly.

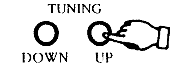
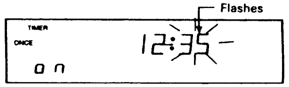
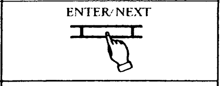
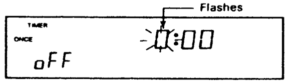
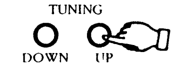
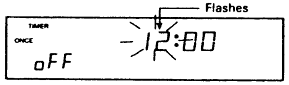
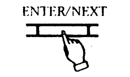
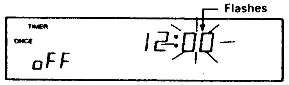
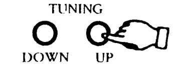
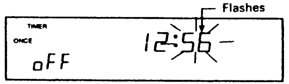
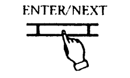
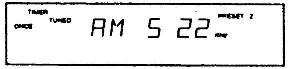
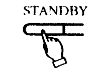
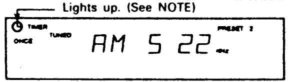
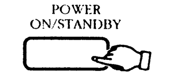
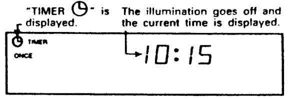
Setting the Once Timer

(Preset the AM and FM stations in advance)


⑦⑨⑪⑬⑮
⑤
③
DENON
①⑱
⑰ ②
④
⑥
⑧⑩⑫⑭⑯

Example: Setting the timer to turn on at 12:35 and off at 12:56.
522 kHz AM is being received on preset number "2".
1611 kHz AM is set to preset number "15".

1	Press the POWER button.	 POWER ON/STANDBY TIMER	 Flashes TIMER EVERY ONCE TIMER
2	Press the TIMER button.		
3	Press the DOWN button to display "ONCE".	 TUNING DOWN UP	 Flashes TIMER ONCE TIMER
4	Press the ENTER/NEXT button.		 TIMER ONCE FUNC
5	Press the UP and DOWN buttons to display "TUNER".	 TUNING DOWN UP	 TIMER ONCE TUNER
6	Press the ENTER/NEXT button.		 TIMER ONCE TUNED AM 1611 kHz P15 Flashes
7	Press the UP and DOWN buttons to set the preset number 15.	 TUNING DOWN UP	
8	Press the ENTER/NEXT button.		 TIMER ONCE 0:80 on Lights up.
9	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.	 TUNING DOWN UP	 Flashes TIMER ONCE 12:80 on
10	Press the ENTER/NEXT button.		 Flashes TIMER ONCE 12:00 on

11	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.	 TUNING DOWN UP	 Flashes TIMER ONCE 12:35 on
12	Press the ENTER/NEXT button.		 Flashes TIMER ONCE 0:00 oFF
13	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.	 TUNING DOWN UP	 Flashes TIMER ONCE 12:80 oFF
14	Press the ENTER/NEXT button.		 Flashes TIMER ONCE 12:00 oFF
15	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.	 TUNING DOWN UP	 Flashes TIMER ONCE 12:56 oFF
16	Press the ENTER/NEXT button.		 TIMER ONCE TUNED AM 522 kHz PRESET 2
17	Press the STANDBY button.		 Lights up. (See NOTE) TIMER ONCE TUNED AM 522 kHz PRESET 2
18	Press the POWER button.	 POWER ON/STANDBY	 "TIMER ◷" is displayed. The illumination goes off and the current time is displayed. TIMER ONCE 10:15

- When the STANDBY button is pressed and the " ◷ " mark is lit, the timer will function one time only.
- To switch off the timer, press the STANDBY button and turn off the " ◷ " mark.

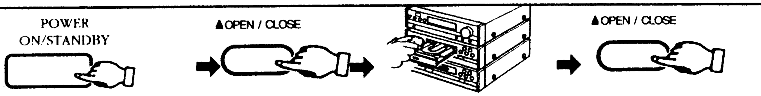
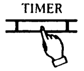
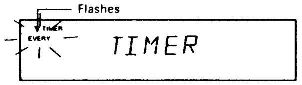
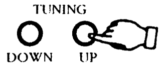
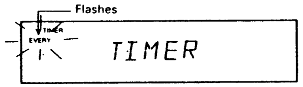
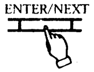
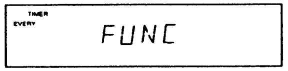
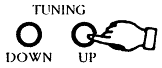
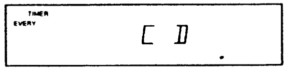
NOTE:

The standby mark " ◷ " will not light unless the current timer has been set. Should this be the case, set the current time, then press the STANDBY button.

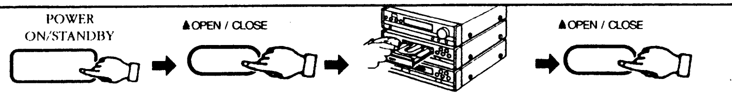
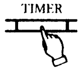
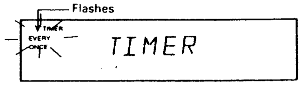
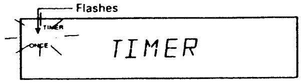
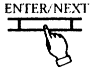
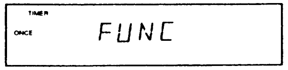
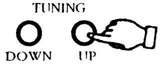
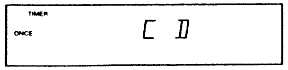
Ways to Use the Timer

Example 1: Waking up to the music of a compact disc.

1 EVERYDAY TIMER

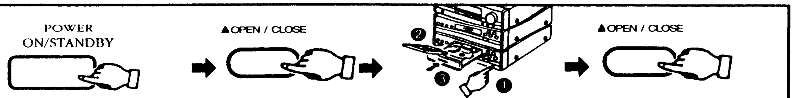
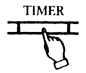
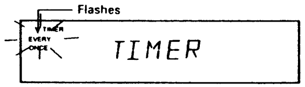
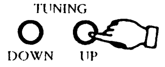
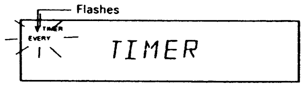
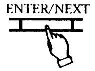
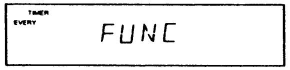
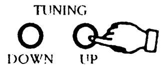
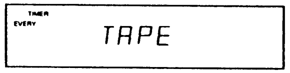
1	 POWER ON/STANDBY ▲OPEN / CLOSE ▲OPEN / CLOSE Press the receiver's POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 Flashes TIMER
3	Press the UP button to display "EVERY".	 TUNING DOWN UP	 Flashes EVERY TIMER
4	Press the ENTER/NEXT button.		
5	Press the UP and DOWN buttons of the receiver to display "CD".	 TUNING DOWN UP	
6	Follow steps 8 to 18 under "Setting the Timer" on Page 12.		

2 ONCE TIMER

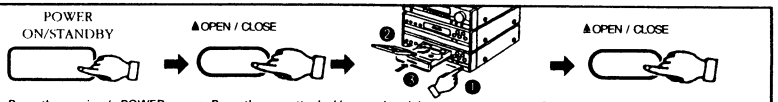
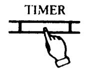
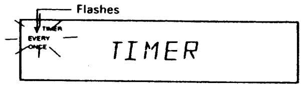
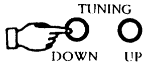
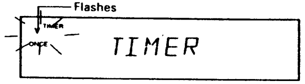
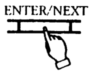
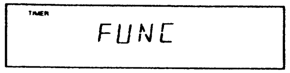
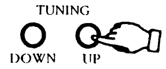
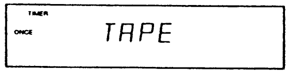
1	 POWER ON/STANDBY ▲OPEN / CLOSE ▲OPEN / CLOSE Press the receiver's POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 Flashes TIMER
3	Press the DOWN button to display "ONCE".	TUNING DOWN UP	 Flashes TIMER
4	Press the ENTER/NEXT button.		
5	Press the UP and DOWN buttons of the receiver to display "CD".	 TUNING DOWN UP	
6	Follow steps 8 to 18 under "Setting the Timer" on Page 13.		

Example 2: Waking up to the music of a cassette tape.

1 EVERYDAY TIMER

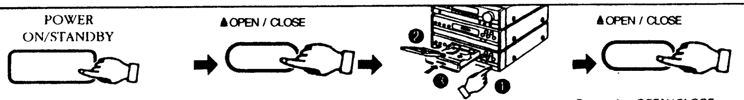
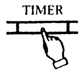
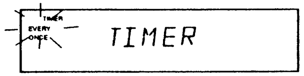
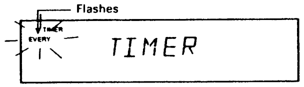
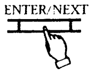
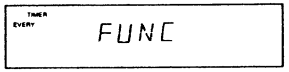
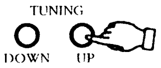
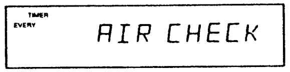
1	 POWER ON/STANDBY ▲OPEN / CLOSE ▲OPEN / CLOSE Press the receiver's POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 Flashes TIMER
3	Press the UP button to display "EVERY".	 TUNING DOWN UP	 Flashes TIMER
4	Press the ENTER/NEXT button.		
5	Press the UP and DOWN buttons of the receiver to display "TAPE".	 TUNING DOWN UP	
6	Follow steps 8 to 18 under "Setting the Timer" on Page 12.		

2 ONCE TIMER

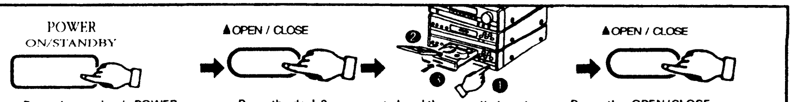
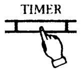
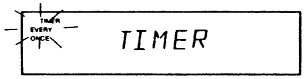
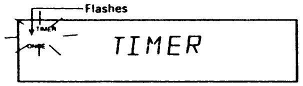
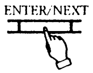
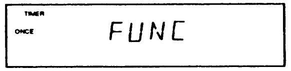
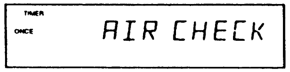
1	 POWER ON/STANDBY ▲OPEN / CLOSE ▲OPEN / CLOSE Press the receiver's POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 Flashes TIMER
3	Press the DOWN button to display "ONCE".	 TUNING DOWN UP	 Flashes TIMER
4	Press the ENTER/NEXT button.		
5	Press the UP and DOWN buttons of the receiver to display "TAPE".	 TUNING DOWN UP	
6	Follow steps 8 to 18 under "Setting the Timer" on Page 13.		

Example 3: Unattended recording of radio broadcasts ("air checks")

1 EVERYDAY TIMER

1	 POWER ON/STANDBY ▲OPEN / CLOSE ❷ ❸ ❶ ▲OPEN / CLOSEPress the receiver's POWER button to switch on the power. → Press the deck OPEN/CLOSE button to open the tray. → Load the cassette tape to which you will record. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 TIMER EVERY ONCE TIMER
3	Press the UP button to display "EVERY".	TUNING DOWN UP	 Flashes TIMER EVERY TIMER
4	Press the ENTER/NEXT button.		 TIMER EVERY FUNC
5	Press the UP and DOWN buttons of the receiver to display " AIR CHECK ".	 TUNING DOWN UP	 TIMER EVERY AIR CHECK
6	Follow steps 6 to 18 under "Setting the Timer" on Page 12.		

2 ONCE TIMER

1	 POWER ON/STANDBY ▲OPEN / CLOSE ❷ ❸ ❶ ▲OPEN / CLOSEPress the receiver's POWER button to switch on the power. → Press the deck 2 OPEN/CLOSE button to open the tray. → Load the cassette tape to which you will record. → Press the OPEN/CLOSE button again to close the tray.		
2	Press the receiver's TIMER button.		 TIMER EVERY ONCE TIMER
3	Press the DOWN button to display "ONCE".	TUNING DOWN UP	 Flashes TIMER ONCE TIMER
4	Press the ENTER/NEXT button.		 TIMER ONCE FUNC
5	Press the UP and DOWN buttons of the receiver to display " AIR CHECK ".	TUNING DOWN UP	 TIMER ONCE AIR CHECK
6	Follow steps 6 to 18 under "Setting the Timer" on Page 13.		

- Timer recording starts in the direction indicated by the tape deck.
- Check that the tape direction and REV MODE switch settings are as desired.
- The section of leader tape at the beginning of the tape cannot be recorded. To avoid missing the beginning of the recording, forward the tape about 10 seconds.

Checking the Timer Settings

To check the timer settings, turn on the receiver's POWER button, press the TIMER button, select "EVERY" or "ONCE" with the AUTO TUNING UP button, then press the ENTER/NEXT button. The timer start mode, reception band, preset number, on time, and off time are displayed in order each time the ENTER/NEXT button is pressed. One more press returns the display to the reception frequency.

Changing the Timer Settings

When the timer setting operation is repeated, the previous settings are deleted and the new settings are set.

Deleting the Timer Settings

The timer settings can be cleared by pressing the TIMER button, select "EVERY" or "ONCE" with the TUNING UP button, then press the ENTER/NEXT button and then while "FUNC" is being displayed, pressing the CLEAR button.

Note about the Set Timer

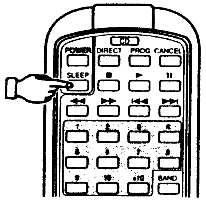
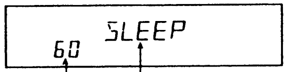
If the set time of the timer is reached while the power is on, the timer settings will take over and there will be a switch to the function that has been set on the timer.

Cancelling the Timer

Press the STANDBY button and the " ◷ " mark will go off.

Setting the Sleep Timer

(Use the remote control unit for these operations.)
Example: Setting the power to switch off in 50 minutes.

	Currently receiving 87.50 MHz, FM.	FM 87.50 MHz	
1	 Press the remote control unit's SLEEP button.	 "60" is displayed. "SLEEP" appears and flashes for 5 seconds.	
2	Press the SLEEP button again while "SLEEP" is flashing.	"50" is displayed, and the frequency display (87.50) reappears after 5 seconds.	The power is switched off after 50 minutes.

- If the sleep timer and regular timer settings overlap, the sleep timer is given priority.
- Do not press the STANDBY button after the power has been switched on with the timer. If this is done, the timer will not function properly.
- If the same time is set for the on time and off time, the power will not be switched on even when the "STANDBY" indicator is lit.
- If the timer is set for an AM or FM station and the on time of the timer is reached while listening to another station, the tuner switches to the station which was set with the timer.

Cancelling the Sleep Timer

- To cancel the timer while it is operating in the sleep mode, press the SLEEP button, and while "SLEEP" is flashing, press the CLEAR button on the receiver.
- Press the SLEEP button repeatedly until the power turns off. This cancels the sleep timer.

8 CASSETTE DECK

Before Recording and Playback

Auto Reverse

This deck is equipped with an auto reverse mechanism, so cassette tapes can be played and recorded on both sides or played continuously without having to turn them over.

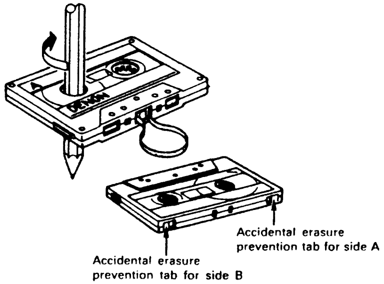
■ Direction of tape travel
This deck has two play buttons, one for the forward direction (front side) and another for the reverse direction (back side). The side being played can be changed during playback by pressing the opposite play button.

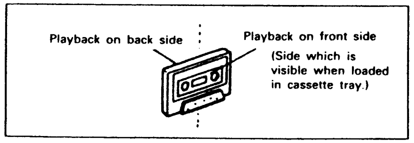
■ Reverse mode
Set the reverse mode switch (REV MODE) as follows:

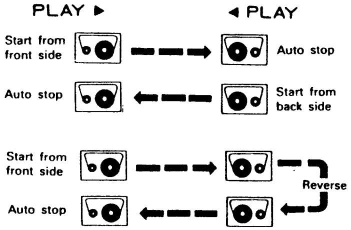
- **Single-side recording/playback mode (⇄)**
  In this position, only the front side or the back side of the cassette tape is played or recorded. (The tape stops automatically when the end of that side is reached.)
- **Two-side recording/playback mode (⊃)**
  In this position, when the end of the front side is reached, recording or playback automatically switches to the back side and continues from there. (The tape stops automatically when the end of the back side is reached.)
- **Continuous playback mode (↻)**
  In this position playback continues until the STOP button is pressed.

Cassette Tapes

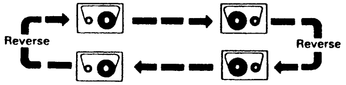
■ Handling Precautions
- C-120 cassette tapes
  Avoid using 120-minute cassette tapes, since they have extremely thin tape which tends to become wound onto the capstans or pinch rollers.
- Tape slack
  If the tape is slack, it may become wound onto mechanism parts or otherwise damaged. Take up the slack with a pencil before loading the cassette.


Accidental erasure prevention tab for side A
Accidental erasure prevention tab for side B





* If you start playing or recording from the back side, the tape will stop automatically at the end of the back side.



* The reverse recording/playback mode (⊃) is set automatically during recording.

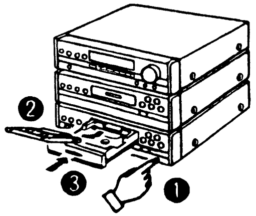
■ Storage Precautions
- Avoid storing in the following places:
  - Hot, humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic fields (TVs, speakers, etc.)
- Store the cassette tape in a case equipped with stoppers to keep the tape from coming slack.

■ Protecting Cassette Tapes From Being Erased Accidentally
- Cassette tapes are equipped with accidental erasure prevention tabs. To protect recorded tapes from being erased accidentally, use a screwdriver, etc., and break these tabs off.
- To record on a cassette tape whose accidental erasure prevention tabs have been broken off, place a pieced of cellophane tape over the hole.

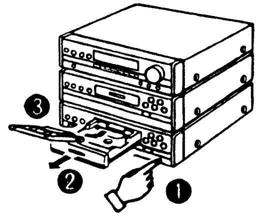
Before Operating

Loading and Unloading Cassette Tapes

- **Loading**
  - ❶ Press the OPEN/CLOSE button (▲) to open the cassette tray.
  - ❷ Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
  - ❸ Press the OPEN/CLOSE button again to close the tray.



- **Unloading**
  - ❶ Press the STOP button (■).
  - ❷ Press the OPEN/CLOSE button (▲) to open the cassette tray.
  - ❸ Remove the cassette tape.



Check the following before recording or playing cassette tapes:

1. Is the head dirty ? ...
   The sound quality will be poor if the head is dirty. Refer to Page 23.
2. Are the accidental erasure prevention tabs broken off ? ...
   Recording is not possible if these tabs are broken off. Refer to Page 16.

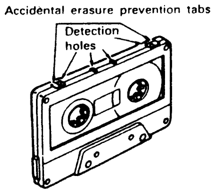
NOTE:

- Load the cassette tape on an angle with the open side facing away from you. Loading it in the opposite direction can cause damage.
- Do not press the OPEN/CLOSE button during playback or recording. Always press the STOP button before pressing the OPEN/CLOSE button.

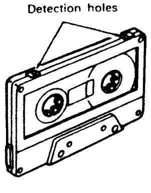
Auto Tape Selector Mechanism

This deck is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to automatically set the recording bias and equalization best suited for that type of tape.

- Do not use ferrichrome tapes.
- Use metal tapes equipped with detection holes. (Use of the old type of metal tape without detection holes will result in the sound having an emphasized treble region.)



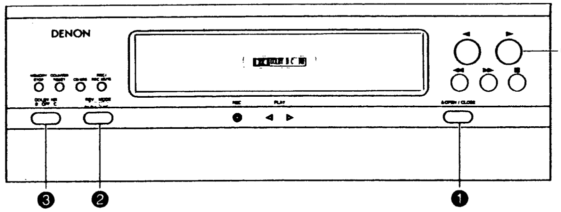
Metal tape

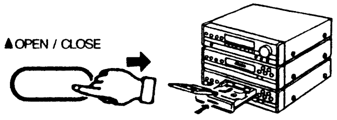
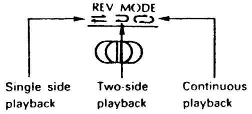
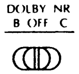
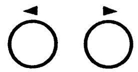


Chrome tape

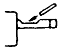
9 PLAYING CASSETTE TAPES

(Single Side Playback, Two-Side Playback, and Continuous Playback)



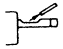
1	Press the POWER button of the receiver, then press the OPEN/CLOSE button and load a recorded tape into the tray. Refer to Page 17.	
2	Set the REV MODE switch. Refer to Page 16.	 REV MODE Single side playback Two-side playback Continuous playback
3	Set the DOLBY NR switch. Refer to Page 6 ❶ (CASSETTE DECK).	 Set to B or C (as indicated on the tape) for tapes recorded with Dolby NR.
4	Press the play button (▶ or ◀).	 Playback starts in the direction of the button pressed.

Loading the tape



The tape can be loaded easily by inserting it at an angle.

Removing the tape



The tape can be removed easily by lifting it out toward yourself at an angle.

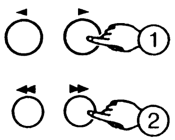
Press the stop button ■ to stop the playback.

Using the MS (Music Search) Function

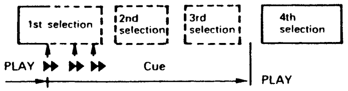
■ **Use this function to move to the beginning of the following section or return to the beginning of the current selection.**

① Press ▶ or ◀.
② Press ▶▶ or ◀◀.

- In the rewind direction, playback starts from the beginning of the selection which is currently playing, and in the fast-forward direction, playback starts from the beginning of the following selection.



The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.
For example:



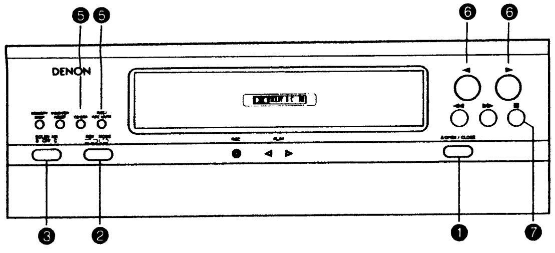
The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.

■ **Music search display**

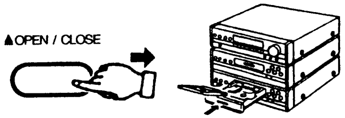
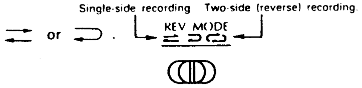
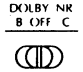
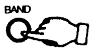
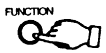
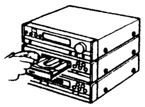
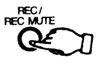
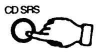
During the music search operation, the number of selections to be skipped is indicated on the tape counter, and this number decreases each time a blank section between selections is detected (ex.: 3 → 2 → 1).

- When a previous selection is specified: P-03 ← Number of selections to be skipped
  (-) ← Lights when moving to previous selections
- When a subsequent selection is specified: P-05 ← Number of selections to be skipped

10 RECORDING CASSETTE TAPES



- The positions of the VOLUME and tone controls do not affect the sound being recorded.

<table>
<tr><td>1</td><td colspan="3">Press the OPEN/CLOSE button ≜ and load the tape to which you will record.
Refer to Page 17.
 </td></tr>
<tr><td>2</td><td colspan="3">Set the REV MODE switch to ⇄ or ⊃.
Refer to Page 16.
 </td></tr>
<tr><td>3</td><td colspan="3">Set the DOLBY NR switch.
Refer to Page 6 ❶.

Set to B or C to record with Dolby NR.</td></tr>
<tr><td rowspan="2">4</td><td>Recording from the radio</td><td>Recording from a AUX/DAT</td><td>Recording from a CD player</td></tr>
<tr><td>
Press the BAND selector button.
↓
Select the station you wish to record.
(Refer to Page 9.)</td><td>
Press the receiver's FUNCTION button and select AUX.
↓
Start playback on the DAT.</td><td>
Set the disc in the CD player.
(Refer to Page 18.)</td></tr>
<tr><td>5</td><td colspan="2">Press the REC/REC MUTE button.

The REC (recording) indicator lights.</td><td rowspan="2">(5)

Press the CD SRS button.
(recording starts.)</td></tr>
<tr><td>6</td><td colspan="2">Press the ▶ or ◀ button.
(Recording starts)
 </td></tr>
<tr><td>7</td><td colspan="3">To stop recording, press the stop button.
 </td></tr>
</table>

* When the CD SRS button is pressed, a 7-second blank portion is automatically created before recording starts.

11 PLAYING CDs

Compact Discs

- Press the OPEN/CLOSE button (≜) once to open the disc try, once again to close it.
- The disc tray can also be closed by pressing the play (▶) button.
  When this is done, playback automatically starts from the first track on the disc (or if the tracks are programmed, the first programmed track).
- Load the disc with the label side facing up, being careful not to touch the disc surface.
- Load the disc with the disc tray open all the way.
- Set the disc securely in the tray guide at the center of the disc tray.
  To play an 8 cm disc, place the disc in the sunken part at the center of the disc tray.
- When the disc tray is closed, the disc turns automatically for several seconds, and the number of tracks and total playing time appear on the display.

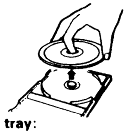
COMPACT disc DIGITAL AUDIO

Only discs with this mark can be played.

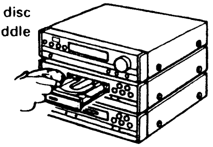
- For CDVs, only the audio part is played (the video part is not played).

Disc	Remarks
CD	
CDV	Only the audio part is played.
CD single (8 cm)	

■When removing the disc from its case:
As shown in the diagram, grasp the disc along the edges, gently press down on the hole in the middle with a finger, and lift the disc. It should come out easily.

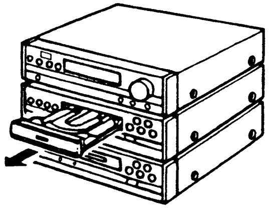


■When setting the disc in the disc tray:
Always set the disc with the label side facing up. (Compact discs can only be played on one side). For 8 cm CDs, set the disc in the sunken part in the middle of the tray.



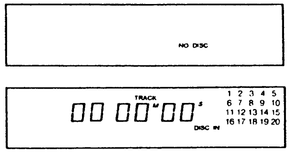
Handling the Disc Tray
Do not switch off the power or push or pull the disc tray when it is moving, since this may damage it.
If the cord of a set of headphones, etc., gets caught in the disc tray when it is closed, press the OPEN/CLOSE button (≜) again.

- Never set objects other than CDs in the disc tray, as this can cause damage.

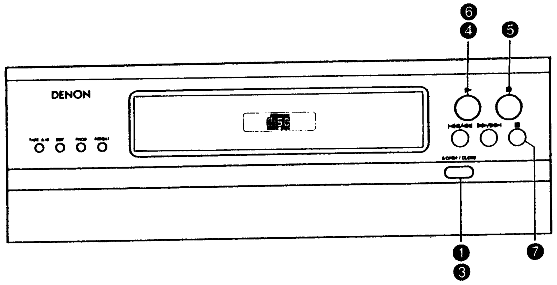


NOTE:

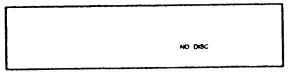
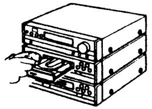
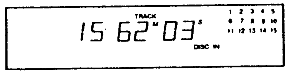
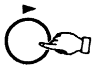
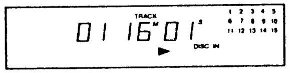
"NO DISC" is displayed on the display window when no disc is loaded, when the disc is loaded upside-down, or when the disc is not properly loaded. Also, " 0 0.0 0. " may appear during playback of a CD if the disc is scratched or dirty. If this happens, the set will not operate when a normal operating button (other than the OPEN/CLOSE button) is pressed, so press the OPEN/CLOSE (≜) button, remove the disc, clean it as necessary, then press the PLAY (▶) button again.



Regular Play



Example: Playing a CD with 15 tracks and a total playing time of 62 minutes 03 seconds, starting from track 1

1	Press the POWER button of the receiver, then press the OPEN/CLOSE button.	OPEN/CLOSE The disc tray opens	
2	Set the CD in the disc tray. Refer to Page 18.		The display appears several seconds after the disc tray closes.
3	Press the OPEN/CLOSE button.	OPEN/CLOSE The disc tray closes	 TRACK 15 62M03S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 DISC IN
4	Press the PLAY button.	 CD play starts	 TRACK 01 16M01S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ▶ DISC IN

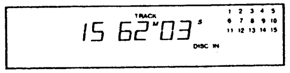
To stop play temporarily:

5	Press the PAUSE button.		"▶ PLAY" goes off and "II PAUSE" appears. CD play is paused at the point the button is pressed.

To resume CD play:

6	Press the PLAY button.		II PAUSE" goes off and "▶ PLAY" appears. CD play resumes from the point the pause button was pressed.

To stop CD play:

7	Press the STOP button.		 TRACK 15 62M03S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 DISC IN

NOTE:

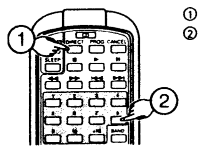
- " *00* " is displayed on the track number section of the display for several seconds after the disc is set, while the data on the number of tracks, playing time, etc., is being read from the disc. After this, the number of tracks and total playing time appear.

Various CD Play Functions

(Insert the disc before performing the following operations.)

❶Playing Certain Tracks .... DIRECT SELECTION

Example: Playing the 8th track
Perform this operation from the remote control unit.

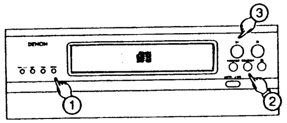


① Press the DIRECT button.
② Press track button "8". "TRACK 8" appears on the display, and the 8th track begins playing.

- When the end of the track is reached, play continues on to the next track.

- For track numbers of 11 and higher, for example 15, press [+10] and [5]. For track numbers of 20 and higher, for example 23, press [+10], [+10], and [3]. For track number 20, press [+10] and [10].

❷Playing 1 Track Repeatedly .... 1 TRACK REPEAT

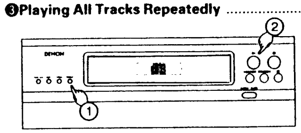


① Press the REPEAT button once.
② Press the ⏮ ◀◀ or ▶▶ ⏭ button, and select the desired track.
③ Press the play button (▶) to start play.

- When the specified track finishes playing, the pickup returns to the beginning of that track and play is repeated.
- If the REPEAT button is pressed once during play, the track will be played repeatedly.
- If the REPEAT button is pressed once during programmed play, the track will be played repeatedly.

* If the REPEAT button is pressed once while the disc is stopped, the "REPEAT 1" indicator lights and the 1 track repeat play mode is set.

❸Playing All Tracks Repeatedly .... ALL TRACKS REPEAT



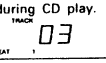
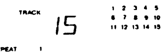
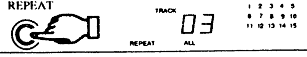
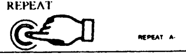
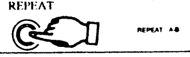
① Press the REPEAT button twice.
② Press the play button (▶) to start play.

- When the last track finishes playing, the pickup returns to the first track of the disc and play is repeated.
- If the REPEAT button is pressed twice during play, the disc will be played repeatedly.
- If the REPEAT button is pressed twice during programmed play, the program will be played repeatedly.

* If the REPEAT button is pressed twice while the disc is stopped, the "REPEAT ALL" indicator lights and the all tracks repeat play mode is set.

❹Playing a Specific Section Repeatedly .... SECTION REPEAT

Example: The CD has a total of 15 tracks

1st time	(1) Press the REPEAT button during CD play. 	"REPEAT 1" lights up, and only that track is played repeatedly, and that track number lights on the music calendar. * With a 1-track repeat of track 31 or higher, "TRACK No." flashes.
	(2) Press the REPEAT button before CD play.  TRACK 15 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 REPEAT 1	"REPEAT 1" lights up, and the total number of tracks lights, and then ① the first track is repeated by pressing the play button ② when play is started by direct selection from the remote control or with the ⏭ or ⏮ button, only those selected tracks are played repeatedly.
2nd time	Press the REPEAT button before CD play or during CD play.  REPEAT TRACK 03 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 REPEAT ALL	"REPEAT ALL" lights up, and the track numbers contained on the disc light up on the music calendar, and all tracks are played repeatedly.
3rd time	Press the REPEAT button during CD play. 	"REPEAT A-" lights up. If nothing else is done, all tracks are played repeatedly.
4th time	Press the REPEAT button during CD play. 	"REPEAT A-B" lights up. The A-B section is played repeatedly.

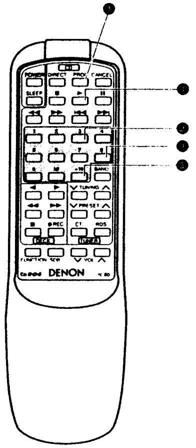
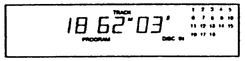
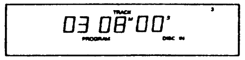
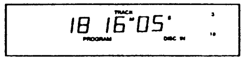
Pressing the REPEAT button once again returns the player to regular CD play.

❺Playing Certain Tracks in any Desired Order ...... PROGRAMMED SELECTION

(Perform this operation from the remote control unit.)

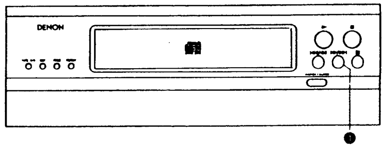
Example: Programming track 3 to play first, track 18 to play second, on a CD with 18 tracks and a total playing time of 62 minutes, 3 seconds

Setting and Playing the Program

1	Press the PROGRAM button.		
2	Set track 3 to play first.		 After 2 seconds The display when track 3 is set to play first Time of first track: 8 minutes, 00 seconds
3	Set track 18 to play second.		 After 2 seconds The display when track 18 is set to play second Total time of tracks 1 and 2: 16 minutes, 05 seconds
4	Press the play button.		The tracks start playing in the programmed order.

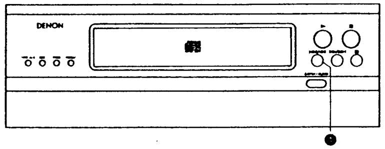
- The numbers of the programmed tracks go off once the tracks are played.
- The time display will read "— — M — — S" if a track number of 31 or higher is set in the program.
- When a program is set during CD play after a direct selection, the track currently playing is set as the first track in the program.
- Up to 30 tracks of your choice from among track numbers 1 through 99 can be programmed with this CD player.
- If you attempt to set a track number that is greater than the number of tracks on the disc, that track number will not be displayed when the buttons are pressed.
- Programming is also possible when the disc tray is open. In this case, track numbers greater than the number of tracks on the disc can be programmed, but these are ignored when the disc is played.
- There is a silent interval of 4 seconds between tracks. This is has been designed to create à blank section of 4 seconds between selections when recording programmed tracks onto tape.
- The entire program is cleared when the disc tray is opened (by pressing the ⏏ button).
- If you make a mistake when programming tracks, press the CANCEL button and program again. (Each press of the CANCEL button cancels the last track.)
- An A-B section repeat is not possible during programmed play.
- Other operations possible during programmed play:
  The quick search, pause, skip monitor, and other operations can be used during programmed play. To move to the beginning of the previous track with the quick search operation, press ⏮ ◀◀ once, then once again while the time display reads " 0 0.0 0. ". To move to the beginning of the following track, press ▶▶ ⏭ once, regardless of the time display.
- Perform programming and canceling in the stop mode.
- Programming is also possible in the same way using the PROG button on the CD player. (In this case, use the ▶▶/⏭ button to select the track number, the PROG button as the memory button. In other words, first press the PROG button, next press the ▶▶/⏭ button to select the track number, then press the PROG button again to set the track in the memory. For the second track as well, press the ▶▶/⏭ button then the PROG button.)

❻Moving to the Next Track During CD Play ...... QUICK SEARCH



① Press the auto search forward button (▶▶/⏭).
- Each press of the auto search forward button (▶▶ ⏭) moves the pickup to the beginning of following tracks.

❼Moving Back to the Beginning of the Current Track During CD Play ...... QUICK SEARCH

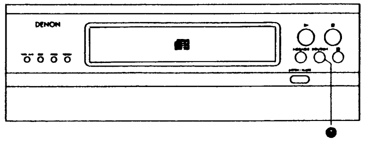


① Press the auto search backward button (⏮/◀◀).
- Each press of the auto search backward button (⏮/◀◀) during the search operation moves the pickup to the beginning of previous tracks.

❽Searching for Tracks While Listening to the Sound ...... SKIP MONITOR

- Use this to skip through a disc listening to the sound at high speed.
  This function is convenient when searching for a certain section within a long track.
- Use the skip monitor function to find the desired position, then release the search button to start regular playback from there.

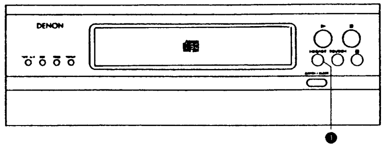
1 Forward skip monitor



① During CD play, press and hold in the forward search button (▶▶/⏭) to skip forward while listening to the sound.

- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the end of the last track on the disc is reached while pressing the search button, (]]) appears on the display and the skip monitor operation stops. To resume CD play, press the search backward button (⏮/◀◀) until (]]) switches to the track number, then perform a different operation.

2 Backward skip monitor



① During CD play, press and hold in the backward search button (⏮/◀◀) to skip backward while listening to the sound.

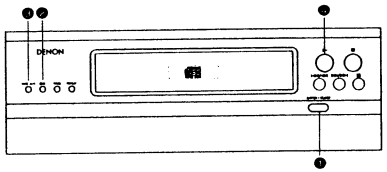
- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the beginning of the first track on the disc is reached while pressing the search button, ([[) appears on the display and the skip monitor operation stops. To resume CD play, press the search forward button (▶▶/⏭) until ([[) switches to the track number, then perform a different operation.

If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

Edited Recording onto Sides A and B of a Tape (EDIT)

Editing is possible with CDs containing up to 30 tracks.

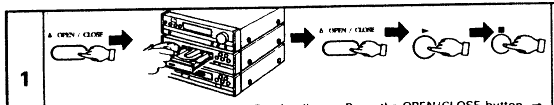
Before starting the edited recording operation, load the cassette tape to which you will record into deck with side A facing up.
The leader tape is automatically taken up before recording starts.
(Set the REV MODE switch to the ⊐ position.)



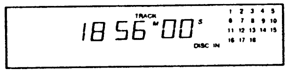
❶Automatic Edited Recording .... RECORDING IN THE SAME ORDER AS ON THE DISC

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1


▲ OPEN / CLOSE
▲ OPEN / CLOSE
▶
■

Press the OPEN/CLOSE button. → Set the disc. → Press the OPEN/CLOSE button. → Press the play button and set the function to CD. → Press the stop button.

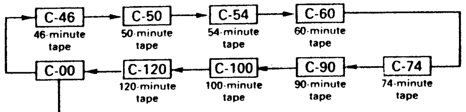

TRACK
18 56'00"
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18
DISC IN

NOTE:

- With edited recording, side B of the tape will be recorded automatically even when the REV MODE switch of the deck is set to the ⇄ position.
- During edited recording, only the following buttons will function: the stop button of the CD or the OPEN/CLOSE button, and the stop button of the deck.
- When using a recorded tape for edited recording, the tape should be erased before use, since when the tape is longer than the set time, an unrecorded section of side B will remain after the tape stops.
  When a tape which has been recorded with this system is played back, there will be 4-second blank portions between tracks (for making it easy to reach the beginning of a track). This will differ from the actual silent portions between the tracks on the disc, and so there will be some error in the actual remaining time of the tape and the displayed time.

2

Press the EDIT button to set the tape length.
Press the EDIT button four times when using a 60-minute (C 60) tape.
(The tape length is to total time of sides A and B.)
The display changes as follows each time the EDIT button is pressed. (When the tape time has already been set, the display will change in order starting at that time each time the EDIT button is pressed.)


C-46
46-minute tape
C-50
50-minute tape
C-54
54-minute tape
C-60
60-minute tape
C-74
74-minute tape
C-90
90-minute tape
C-100
100-minute tape
C-120
120-minute tape
C-00

→ The desired recording time can be set when this is displayed.

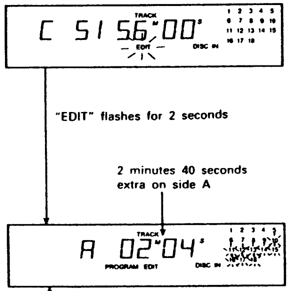
↓

Example: For a 36-minute tape, use the ⏮/◀◀ or ▶▶/⏭ button to set 36.
To set the tape length using the remote control unit, use the number buttons. For example, in the case of a 30-minute tape, press [+10] twice and press [10].

↓

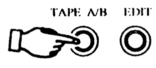
If you make a mistake, press the EDIT button to display "C-00", then start over again.

Setting the desired recording time (Method 2)
Select a tape length close to the desired time, then make a fine adjustment using the ⏮ ◀◀ or ▶▶ ⏭ button.
For example, to set 51 minutes, select C-50, then press the ▶▶ ⏭ button once to set C-51.


TRACK
C 51 56'00"
EDIT
DISC IN
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18
"EDIT" flashes for 2 seconds
2 minutes 40 seconds extra on side A
TRACK
A 02'04"
PROGRAM EDIT
DISC IN

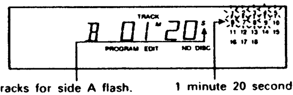
Tracks for side A light up. Tracks for side B flash.
(Tracks 1 through 9 are recorded on side A.)
(Tracks 10 through 18 are recorded on side B.)

3


TAPE A/B
EDIT

A/B button is pressed. (Use this to check the extra time on side B.)

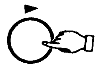
The display changes between sides A and B each time the TAPE


TRACK
B 01'20"
PROGRAM EDIT
NO DISC
11 12 13 14 15
16 17 18

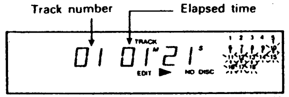
Tracks for side A flash.
Tracks for side B light up.

1 minute 20 seconds extra on side B.

4



Press the play button.


Track number
Elapsed time
TRACK
01 01'21"
EDIT ▶
NO DISC
1 2 3 4 5

- Note that in some cases, even if the tape is longer than the total playing time on the disc, it may not be possible to record all the tracks onto the tape, since they are divided onto sides A and B. In such cases, the OVER indicator flashes.

❷Programmed Edited Recording .... RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER

① Follow the instructions under "PROGRAMMED SELECTION" on Page 20 to program the tracks.
② Perform steps 2 through 4 under the aforementioned "Automatic Edited Recording".

Programmed CD Play Using the Search Buttons (⏮/◀◀ ▶▶/⏭)

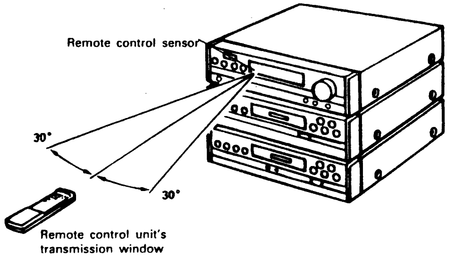
Pressing the PROGRAM button of the remote control unit will light up the "PROGRAM" indicator. When the disc is stopped, programming can be done with the search buttons (⏮/◀◀ ▶▶/⏭) on the CD player or with the search buttons (⏮/◀◀ ▶▶/⏭) on the remote control unit.

- Select the tracks with the search buttons, then press the PROGRAM button to program them.
- The search buttons (◀◀ ▶▶) can be used to change the track numbers continuously.
- After the track numbers have been selected with the search buttons, if the play button is pressed to start CD play before the PROGRAM button is pressed, the last track of the program set up to this point will be played.
  In this case, the tracks selected with the search buttons will not be programmed.

12 REMOTE CONTROL UNIT

Cautions on Use

1. The D-90 is supplied with a remote control unit (RC-170) for system control.
2. Replace the batteries with new ones when the transmission distance possible with the remote control unit shortens.
3. For longer battery life, remove the batteries when not using the remote control unit for long periods.
4. When replacing batteries, use two new batteries. Never use an old battery with a new one.
5. Do not use two different types of batteries.
6. Do not heat batteries or take them apart.
7. Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures.
8. The remote control sensor is located on the receiver. Point the remote control unit at the sensor, then press the buttons for the desired operation.
9. Operate the remote control unit within the range illustrated in the diagram.



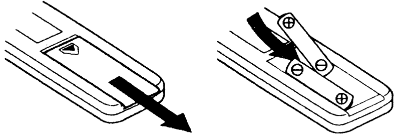
▦ appears at the upper left corner of the receiver display when a signal is received.

- The remote control unit can be used at a distance of about 7 meters from the remote control sensor, but this distance will be shorter if there are obstacles in the way or if the remote control is operated from an angle.

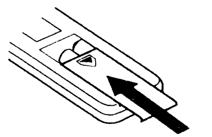
10. Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
11. If ▦ appears on the receiver display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
12. When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.

Inserting the Batteries

① Open the battery case lid on the back of the remote control unit.

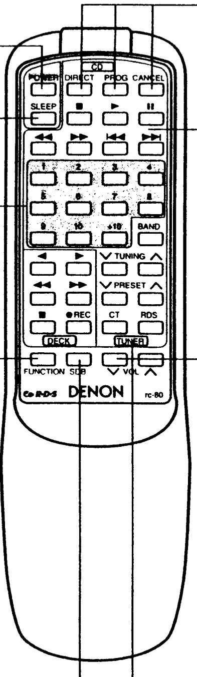


② Insert the two batteries (R6/AA) in the proper direction.



③ Set the battery case lid back in place.

Button Names and Functions



POWER

Press this to switch on the power for the entire system or set the system to standby.

SLEEP

Press this to set the sleep timer.

Number buttons

After pressing TUNER, these buttons call up the preset stations.
When used with CD play, after pressing DIRECT or PROGRAM, these buttons specify the tracks to be played.

Operating the Cassette Decks

Stop button (■)
Press this to stop the tape deck.

Forward play button (▶)
Press this to play back or record in the forward direction.

Reverse play button (◀)
Press this to play back or record in the reverse direction.

● REC button (recording button)
To set the recording mode when in the stop mode, press this button, then press either the "▶" or the "◀" button. When pressed during the recording or recording pause mode, a blank section of approximately 5 seconds is created on the tape, after which the deck is set to the recording pause mode.

Rewind button (◀◀)
Press this to rewind the tape.

Fast-forward button (▶▶)
Press this to fast-forward the tape.

FUNCTION (input switching) button

Switches the function TUNER, TAPE, CD, AUX and PHONO.

SDB (Super Dynamic Bass)

Press this button for more powerful bass sound. Press again to return to the original setting.

TUNER

- **CT (Clock Time) button**
  When the FM band has been set, a single press of this button will cause the clock display to appear for 2 seconds.
  Pressing the button again while the clock is displayed, enables the clock to be matched to the time of the RDS broadcast time service.
- Some stations which provide RDS broadcasts do not broadcast CT signals, in which case the time display cannot be corrected by pressing the CT button.

Press this button to listen to the preset stations.

- **BAND button**
  Use this to select the FM or AM band. When this button and number button is pressed in the standby condition, the power is automatically switched on.
- **TUNING buttons**
  Use these to tune in FM or AM stations.
- **PRESET buttons**
  Use these to select preset stations.
  When this button is pressed in the standby condition, the power is automatically switched on.
- **RDS (Radio Data System) button**
  This button is used for the RDS search, PTY search and TP search operations.

CD Play

DIRECT button
Press for direct track selection of CD player.

PROGRAM button
Press for programmed selection of CD player.

CANCEL button
Press once during programming to cancel the last track programmed.

Operating the CD Player

Pause button (II)
Press to temporarily stop CD play. Press the play button ▶ to resume play.

Stop button (■)
Press to stop CD play.

Play button (▶)
Press to start CD play.

Manual search backward button (◀◀)
Manual search forward button (▶▶)
Press these to quickly move backward or forward.

Backward skip monitor button (I◀◀)
Press during CD play to go back to the beginning of that track. Press the button again within 0.5 seconds to go back to the beginning of the previous track.

Forward skip monitor button (▶▶I)
Press during CD play to go forward to the beginning of the next track. Press the button again to go forward to the beginning of the track two tracks ahead.

VOLUME

Adjusts the volume. Press V to lower the volume, and ʌ to raise it.

13 IMPORTANT INFORMATION

• *Head Cleaning*

After the cassette deck has been used for a while, powder from the tapes and dirt adhere to the head and lower the sound quality.
Use a head cleaning cassette tape to clean.

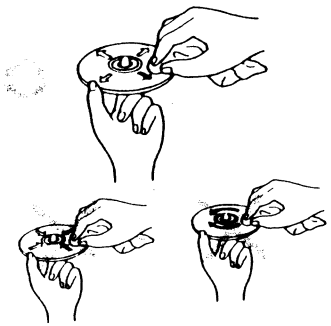
> **NOTE:**
>
> Some of the cleaning sets on the market have a strong polishing effect which can damage the head.

• Head Demagnetizing

The heads become magnetized after the deck has been used over a long period of time or if the heads are exposed to a magnetic field. This results in noise and reduced treble. In addition, there may be a reduction of the treble range of recorded tapes as well as noise produced on these tapes. When the heads become magnetized, use one of the cassette tape head demagnetizers (erasers) available on the market to demagnetize the heads.

- For details, read the operating instructions of the demagnetizer.

• Disc Cleaning



Dust, fingerprints, or spittle on the disc can cause noise or skipping.
If the disc is dirty or if the player does not work properly, clean the disc as follows:

- Hold the disc as shown in the diagram, with the signal surface facing up (and the labelled side facing down).
- Using a soft cloth, wipe the disc gently from the inside straight towards the edges (as shown by the arrows).

> - Do not wipe from the edges towards the center, or around the disc as you would wipe records.
> - Do not use hard cloths or rub the disc forcefully, since the signal surface is susceptible to scratches.

Never use the following to clean discs:

- Solvents such as benzene or alcohol
- Cleaners containing abrasives
- Record sprays or cleaners
- Anti-static products

14 SPECIFICATIONS

■ Receiver (UDRA-77)

• Tuner	
Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB)
FM Stereo Separation:	40 dB (1 kHz)
• Amplifier	
Rated Output Power:	30 W + 30 W (40 Hz to 20 kHz, 6 ohm)
Jacks:	3.5 mm headphone jack
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PHONO: Input jacks AUX/DAT: Input jacks, recording output jacks PROCESSOR: Processor input/output jacks
Dimensions (max.):	273 (W) × 97 (H) × 323 (D) mm (10-48/64" × 3-13/16" × 12-23/32")
Weight:	5.6 kg (12 lbs 5 oz)
Power Supply:	AC 230 V, 50 Hz
Power Consumption:	95 W

■ CD Player (UCD-77)

Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	273 (W) × 97 (H) × 295 (D) mm (10-48/64" × 3-13/16" × 11-39/64")
Weight:	2.6 kg (5 lbs 12 oz)

■ Cassette Deck (UDR-77)

Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome and metal tapes
Dimensions (max.):	273 (W) × 97 (H) × 295 (D) mm (10-48/64" × 3-13/16" × 11-39/64")
Weight:	2.9 kg (6 lbs 60 oz)

■ Remote Control Unit (RC-800)

Type:	Infrared pulse
Number of Buttons:	40
Dimensions (max.):	54,5 (W) × 183 (H) × 18,5 (D) mm (2-3/16" × 7-9/16" × 7/9")
Weight:	100 g (Approx. 4,6 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers.
(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

15 TROUBLESHOOTING

1. Check that the connections are proper.
2. Check that you are operating the system according to the instructions in the manual.

Check the following table if the system does not seem to be working properly.
If the problem is not solved after checking these points carefully, the system may be malfunctioning. Switch off the power and contact your store of purchase.

	Symptom	Cause	Measures	Page
Common	Power does not come on when POWER button pressed.	● Power cord not plugged into outlet.	● Plug cord into outlet properly.	5
	No sound produced from speakers.	● VOLUME control set to minimum. ● Headphones are plugged in. ● Speaker cables not connected to speaker terminals. ● The Relay is affected by clicking noise at intervals.	● Turn VOLUME control clockwise (↻). ● Disconnect headphones ● Connect speaker cables properly. ● Short-circuit with connection cord near speaker terminal. Check connection cord again.	6 6 5 5
	Treble not produced. Orientation of sound field not clear.	● Speaker polarities (+ and –) not matched.	● Connect speaker cables properly.	5
	Source other than the desired one is heard.	● Function selector button not set properly.	● Set to desired function.	6
Deck	Cannot record when REC/REC MUTE button pressed.	● No cassette tape loaded. ● Accidental erasure prevention tabs of cassette broken off.	● Load tape. ● Apply cellophane tape over holes	17 16
	Sound is interrupted during playback and recording, or treble sound is low.	● Head dirty. ● Tape stretched.	● Clean. ● Replace tape.	23 –
	Wow (fluctuation) is heavy during playback and recording.	● Capstans and pinch rollers dirty.	● Clean.	23
	Buzzing noise heard during playback.	● Noise from TV. ● (Some TVs produce noise.)	● Separate TV from system. ● Turn off TV.	– –
Receiver	Hissing noise heard during FM reception.	● Antenna not pointed in proper direction ● Signals weak.	● Change direction of antenna ● Install outdoor antenna.	4 4
	Hissing or scratchy noise heard during AM reception.	● Noise from TV, etc., or interference from other stations.	● Turn off TV. ● Change position of loop antenna. ● Install outdoor antenna.	– – 4
	Hum noise heard during AM reception.	● Signals coming over power cord are modulated by power source frequency.	● Plug in cord in opposite direction ● Install outdoor antenna.	5 4
CD Player	Disc loaded but total number of tracks not displayed.	● Disc loaded upside-down ● Disc dirty. ● Non-standard disc loaded.	● Reload disc. ● Clean disc. ● Replace with standard disc	18 23 18
	Operation not performed when buttons pressed, or playback stops in middle of track.	● Disc loaded upside-down. ● Foreign object in disc holder ● Disc dirty. ● Disc scratched.	● Reload disc. ● Remove disc and remove foreign object. ● Clean disc. ● Replace with non-scratched disc	18 18 23 –
	Sound skips.	● Dust, fingerprints, or spittle on disc. ● Disc scratched ● Player set in shaky, unstable place.	● Clean disc. ● Replace with non-scratched disc ● Set player in stable place.	23 – –
	Buzzing noise mixed in with CD sound.	● Signals coming over power cord are modulated by power source frequency.	● Plug in cord in opposite direction	5

Normal operation may not be possible if there is dirt or other substances on the surface of the internal objective lens or sensor.
These parts must be cleaned periodically depending on the place of installation.
For details, contact your store of purchase.

Avoid using ultrasonic humidifiers nearby.
If ultrasonic humidifiers are used nearby, the calcium, etc., included in the water may be scattered into the air, causing white dust to accumulate on the surface of the objective lens or sensor, resulting in improper operation.

Dew (Condensation) Phenomenon

Dew (water droplets) may form on the lens of the internal optical system or on the disc, or on the rotating parts of the tape deck in situations such as the following:

- Soon after a heater is put on.
- When the set is placed in a steamy or damp room.
- When the set is moved from a cold place to a warm room.

When Condensation Forms

The signals of the disc may not be read and this product will not operate properly. To remove the condensation, take out the disc and switch on the power. The condensation will evaporate within 1 hour and the set will operate normally.

This system consists of precision components using microprocessors. Avoid using it in places where there is much external noise. If used is such places, the system may not operate properly, but this is not a problem with the system. If the system does not operate properly, try performing the desired operation again.

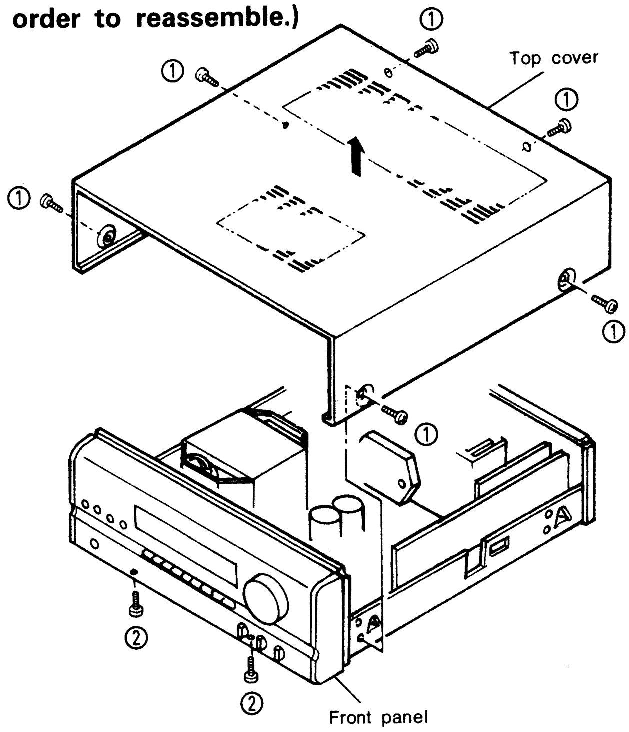
DISASSEMBLY PROCEDURES

(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

① Remove the six screws which fasten the top cover.

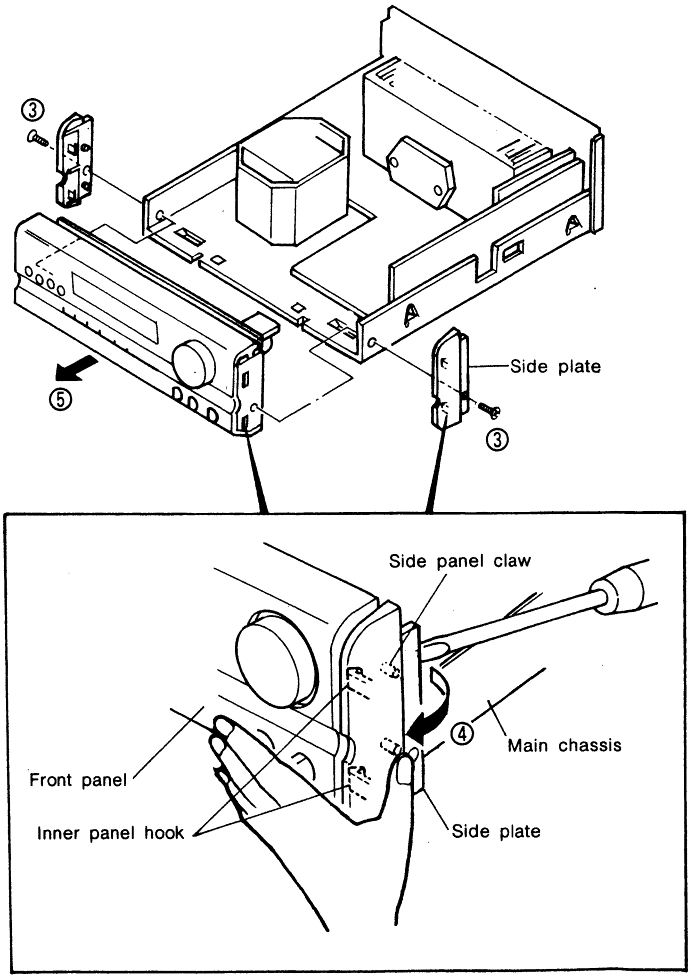
② Remove the two screws of the bottom side which fasten the front panel.


①
①
Top cover
①
①
①
①
②
②
Front panel

③ Remove the two screws which fasten the side plate.

④ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver).
Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.

⑤ Remove the front panel in the direction of the arrow.

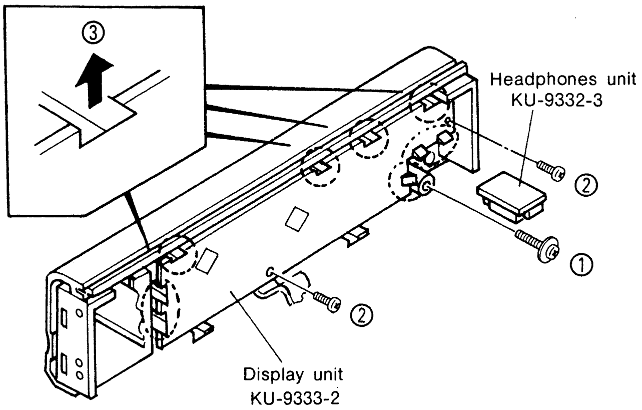

③
⑤
Side plate
③
Side panel claw
④
Main chassis
Front panel
Inner panel hook
Side plate

RECEIVER SECTION

2. Removal of the Various Units

Headphone Unit (KU-9332-3)

① Remove the screw securing the headphone unit.

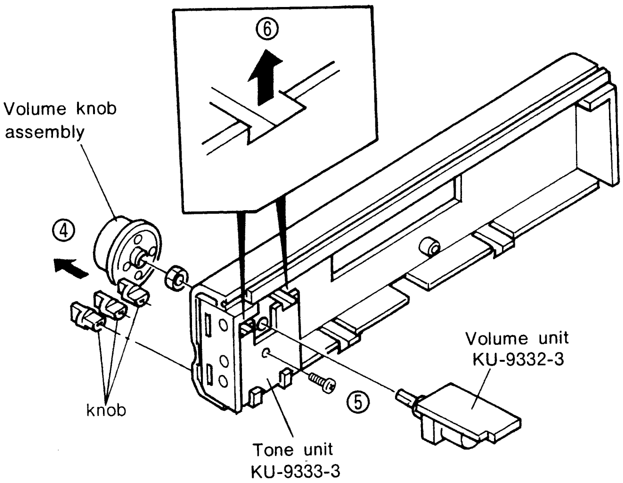

③
Headphones unit
KU-9332-3
②
①
②
Display unit
KU-9333-2

Display Unit (KU-9333-2)

② Remove the two screws securing the display unit.
③ Move the catch in the direction of the arrow and remove the display unit.

Volume Unit (KU-9332-3)

④ Remove the volume knob assembly and three tone knobs, then remove the nut securing the volume unit.


⑥
Volume knob
assembly
④
knob
Volume unit
KU-9332-3
⑤
Tone unit
KU-9333-3

Tone Unit (KU-9333-3)

⑤ Remove the screw securing the tone unit.
⑥ Detach the inner panel hook's catch in the direction of the arrow.

Tuner Unit (KU-9333-1)

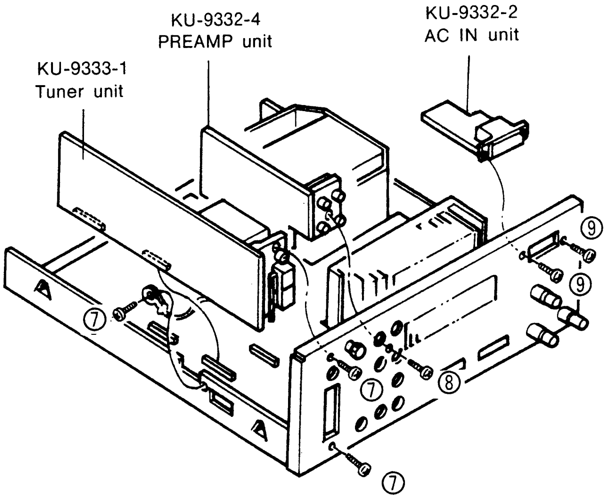
⑦ Remove the three screws securing the tuner unit.

PREAMP Unit (KU-9332-2)

⑧ Remove the screw securing the preamp unit.

AC IN Unit (KU-9332-4)

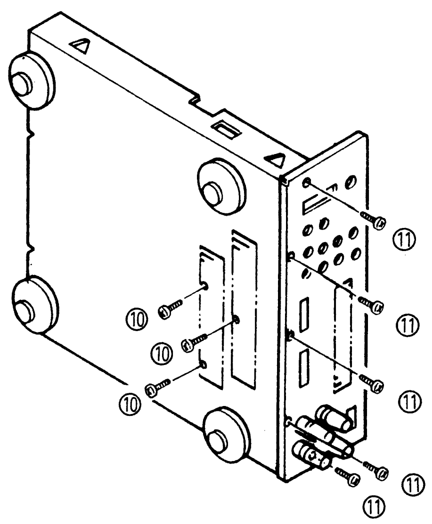
⑨ Remove the two screws securing the AC in unit.


KU-9332-4
PREAMP unit
KU-9332-2
AC IN unit
KU-9333-1
Tuner unit
⑨
⑨
⑦
⑦
⑧
⑦

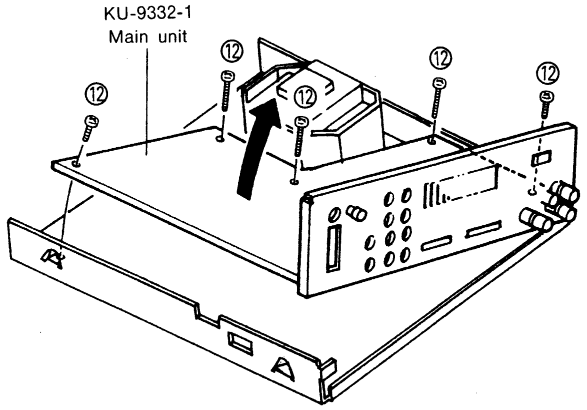
Main Unit (KU-9332-1)

⑩ Remove the three screws securing the heat sink.

⑪ Remove the five screws securing the rear panel.



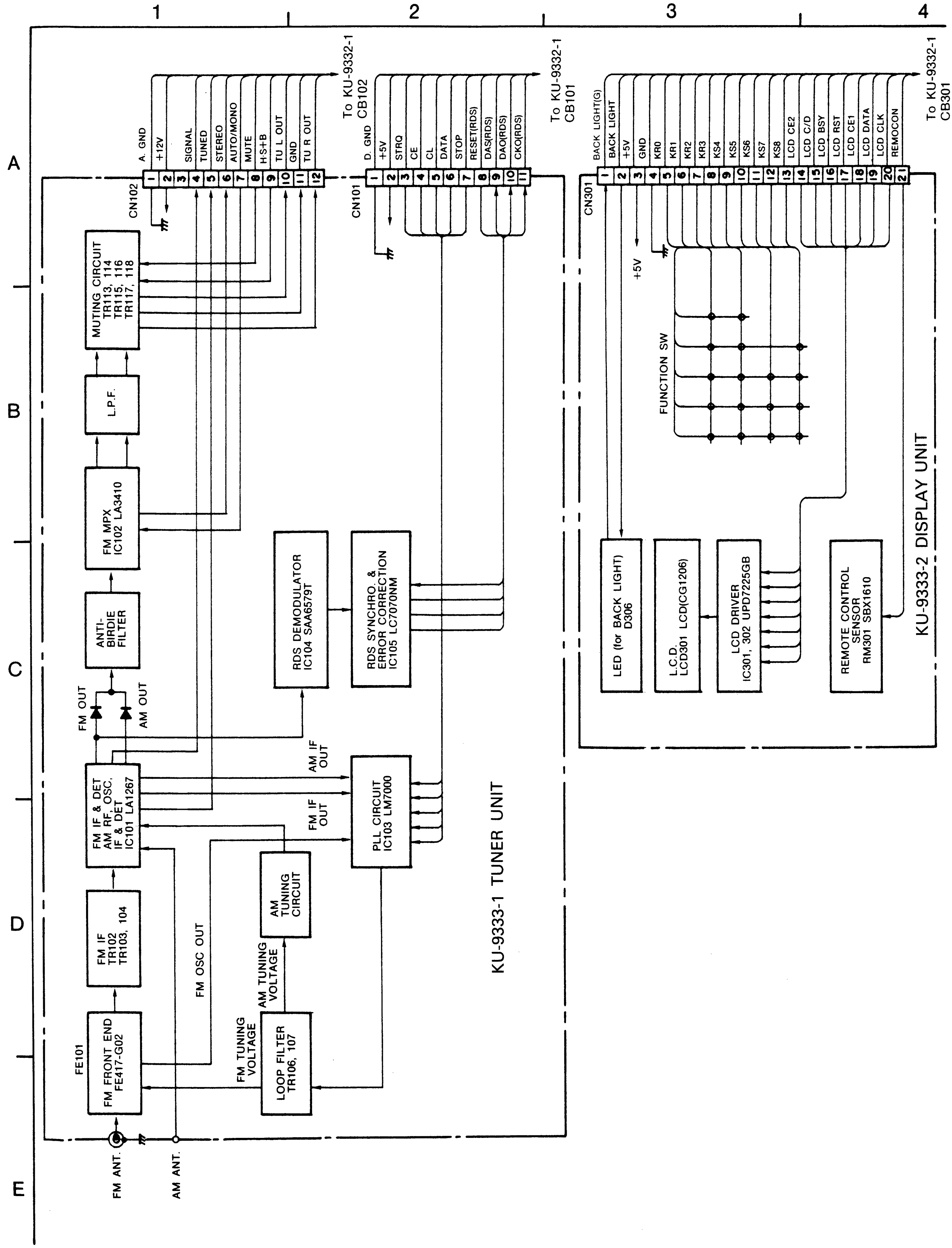
⑫ Remove the five screws securing the main unit.


KU-9332-1
Main unit
⑫
⑫
⑫
⑫
⑫

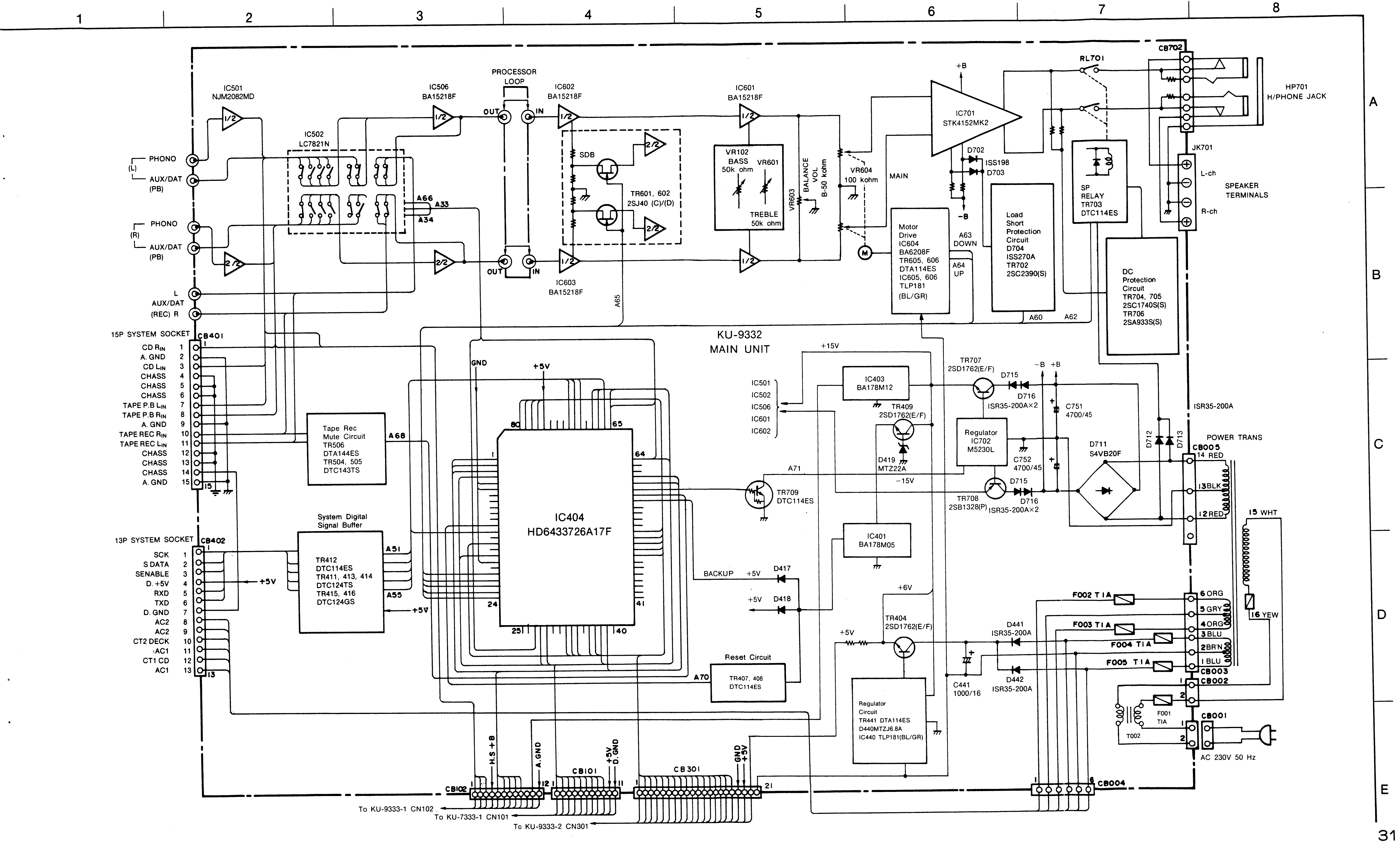
RECEIVER SECTION

● TUNER SECTION

BLOCK DIAGRAM

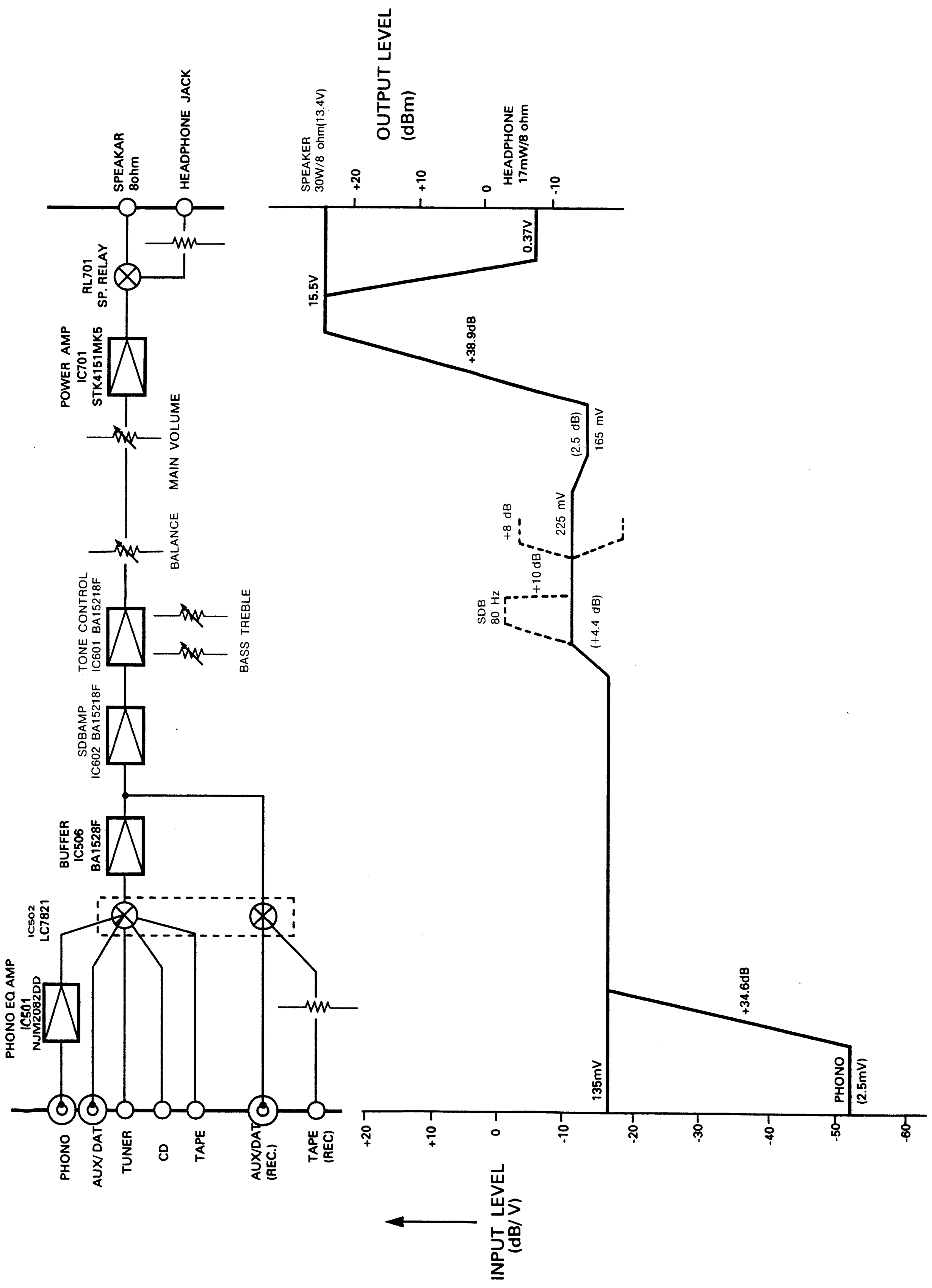

1
2
3
4
A
B
C
D
E
To KU-9332-1 CB102
To KU-9332-1 CB101
To KU-9332-1 CB301
CN102
A. GND
+12V
SIGNAL
TUNED
STEREO
AUTO/MONO
MUTE
H·S+B
TU L OUT
GND
TU R OUT
CN101
D. GND
+5V
STRQ
CE
CL
DATA
STOP
RESET(RDS)
DAS(RDS)
DAO(RDS)
CKO(RDS)
CN301
BACK LIGHT(G)
BACK LIGHT
+5V
GND
KR0
KR1
KR2
KR3
KS4
KS5
KS6
KS7
KS8
LCD CE2
LCD C/D
LCD BSY
LCD RST
LCD CE1
LCD DATA
LCD CLK
REMOCON
MUTING CIRCUIT TR113, 114 TR115, 116 TR117, 118
L.P.F.
FM MPX IC102 LA3410
ANTI-BIRDIE FILTER
FM OUT
AM OUT
FM IF & DET AM RF, OSC, IF & DET IC101 LA1267
FM IF TR102 TR103, 104
FE101
FM FRONT END FE417-G02
FM OSC OUT
AM TUNING CIRCUIT
AM TUNING VOLTAGE
FM TUNING VOLTAGE
LOOP FILTER TR106, 107
AM IF OUT
FM IF OUT
PLL CIRCUIT IC103 LM7000
RDS DEMODULATOR IC104 SAA6579T
RDS SYNCHRO. & ERROR CORRECTION IC105 LC7070NM
KU-9333-1 TUNER UNIT
FM ANT.
AM ANT.
+5V
FUNCTION SW
LED (for BACK LIGHT) D306
L.C.D. LCD301 LCD(CG1206)
LCD DRIVER IC301, 302 UPD7225GB
REMOTE CONTROL SENSOR RM301 SBX1610
KU-9333-2 DISPLAY UNIT

● AMP. SECTION

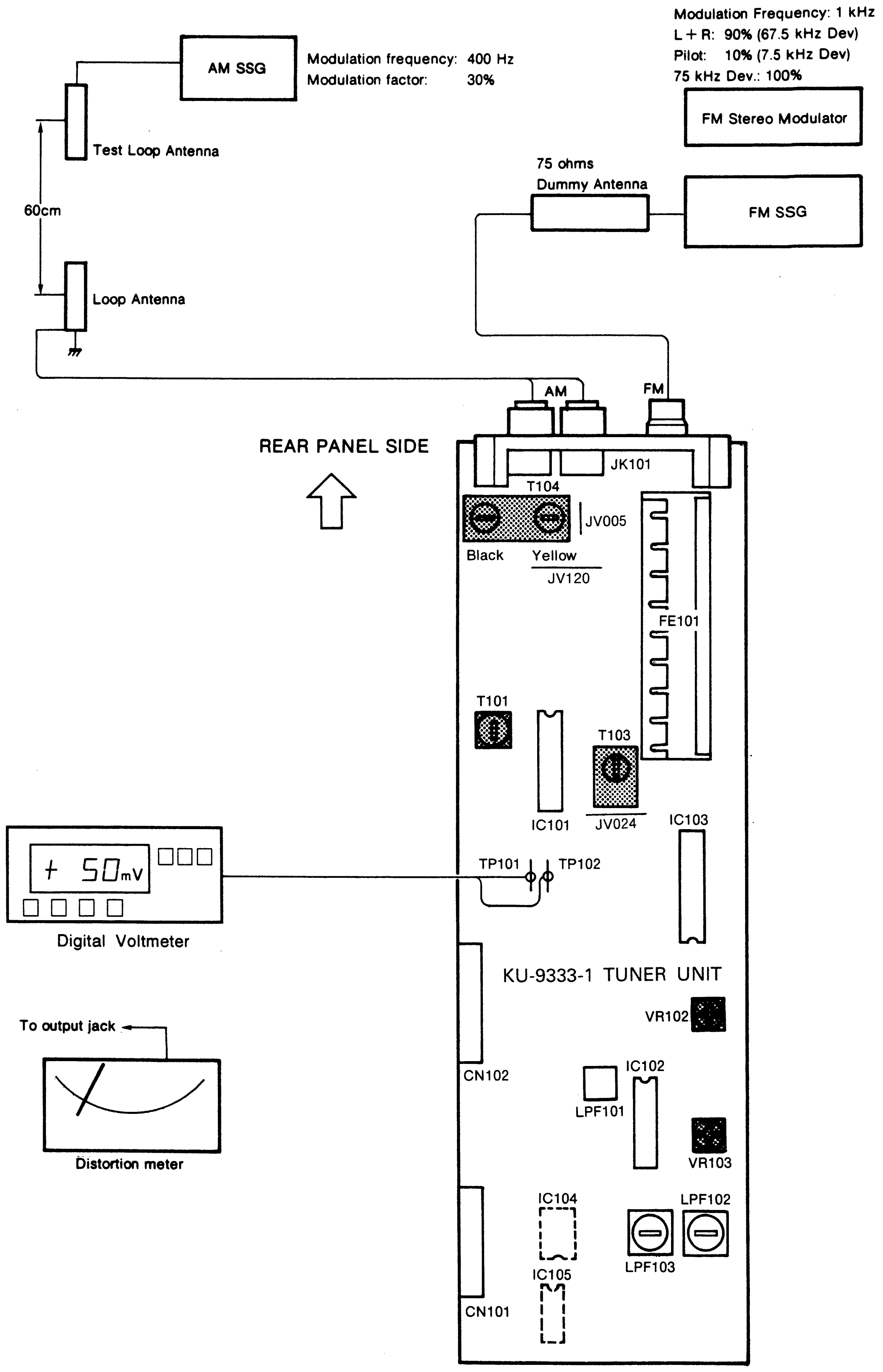

1
2
3
4
5
6
7
8
A
B
C
D
E
IC501
NJM2082MD
1/2
2/2
PHONO
(L)
AUX/DAT
(PB)
PHONO
(R)
AUX/DAT
(PB)
L
AUX/DAT
(REC) R
IC502
LC7821N
A66
A33
A34
IC506
BA15218F
PROCESSOR
LOOP
OUT
IN
IC602
BA15218F
IC603
BA15218F
SDB
TR601, 602
2SJ40 (C)/(D)
A65
IC601
BA15218F
VR102
BASS
50k ohm
VR601
TREBLE
50k ohm
VR603
BALANCE
VOL
B-50 kohm
VR604
100 kohm
MAIN
+B
IC701
STK4152MK2
D702
ISS198
D703
-B
Motor
Drive
IC604
BA6208F
TR605, 606
DTA114ES
IC605, 606
TLP181
(BL/GR)
A63
DOWN
A64
UP
Load
Short
Protection
Circuit
D704
ISS270A
TR702
2SC2390(S)
RL701
SP
RELAY
TR703
DTC114ES
DC
Protection
Circuit
TR704, 705
2SC1740S(S)
TR706
2SA933S(S)
A60
A62
CB702
HP701
H/PHONE JACK
JK701
L-ch
R-ch
SPEAKER
TERMINALS
KU-9332
MAIN UNIT
15P SYSTEM SOCKET
CB401
CD R IN 1
A. GND 2
CD L IN 3
CHASS 4
CHASS 5
CHASS 6
TAPE P.B L IN 7
TAPE P.B R IN 8
A. GND 9
TAPE REC R IN 10
TAPE REC L IN 11
CHASS 12
CHASS 13
CHASS 14
A. GND 15
Tape Rec
Mute Circuit
TR506
DTA144ES
TR504, 505
DTC143TS
A68
GND
+5V
80
65
1
64
24
41
25
40
IC404
HD6433726A17F
13P SYSTEM SOCKET
CB402
SCK 1
S DATA 2
SENABLE 3
D. +5V 4
RXD 5
TXD 6
D. GND 7
AC2 8
AC2 9
CT2 DECK 10
AC1 11
CT1 CD 12
AC1 13
System Digital
Signal Buffer
TR412
DTC114ES
TR411, 413, 414
DTC124TS
TR415, 416
DTC124GS
A51
A55
+5V
+15V
IC501
IC502
IC506
IC601
IC602
IC403
BA178M12
TR409
2SD1762(E/F)
D419
MTZ22A
-15V
A71
TR709
DTC114ES
IC401
BA178M05
BACKUP
+5V
D417
D418
Reset Circuit
A70
TR407, 408
DTC114ES
TR707
2SD1762(E/F)
D715
D716
ISR35-200A×2
-B +B
C751
4700/45
Regulator
IC702
M5230L
C752
4700/45
TR708
2SB1328(P)
ISR35-200A×2
D711
S4VB20F
D712
D713
ISR35-200A
POWER TRANS
CB005
14 RED
13 BLK
12 RED
15 WHT
16 YEW
+6V
TR404
2SD1762(E/F)
+5V
D441
ISR35-200A
D442
ISR35-200A
C441
1000/16
Regulator
Circuit
TR441 DTA114ES
D440MTZJ6.8A
IC440 TLP181(BL/GR)
F002 T1A
F003 T1A
F004 T1A
F005 T1A
6 ORG
5 GRY
4 ORG
3 BLU
2 BRN
1 BLU
CB003
CB002
F001
T1A
T002
CB001
AC 230V 50 Hz
CB004
H.S +B
A. GND
+5V
D. GND
GND
+5V
CB102
CB101
CB301
12
11
21
To KU-9333-1 CN102
To KU-7333-1 CN101
To KU-9333-2 CN301

RECEIVER SECTION

LEVEL DIAGRAM


SPEAKAR 8ohm
HEADPHONE JACK
RL701 SP. RELAY
POWER AMP IC701 STK4151MK5
MAIN VOLUME
BALANCE
TONE CONTROL IC601 BA15218F
BASS TREBLE
SDBAMP IC602 BA15218F
BUFFER IC506 BA1528F
IC502 LC7821
PHONO EQ AMP IC501 NJM2082DD
PHONO
AUX/DAT
TUNER
CD
TAPE
AUX/DAT (REC.)
TAPE (REC)
OUTPUT LEVEL (dBm)
SPEAKER 30W/8 ohm(13.4V)
HEADPHONE 17mW/8 ohm
+20
+10
0
-10
0.37V
15.5V
+38.9dB
(2.5 dB)
165 mV
225 mV
+8 dB
+10 dB
SDB 80 Hz
(+4.4 dB)
+34.6dB
135mV
PHONO (2.5mV)
+20
+10
0
-10
-20
-30
-40
-50
-60
INPUT LEVEL (dB/V)

ADJUSTMENTS


Modulation Frequency: 1 kHz
L + R: 90% (67.5 kHz Dev)
Pilot: 10% (7.5 kHz Dev)
75 kHz Dev.: 100%
AM SSG
Modulation frequency: 400 Hz
Modulation factor: 30%
FM Stereo Modulator
Test Loop Antenna
75 ohms
Dummy Antenna
FM SSG
60cm
Loop Antenna
AM
FM
REAR PANEL SIDE
JK101
T104
JV005
Black
Yellow
JV120
FE101
T101
T103
IC101
JV024
IC103
+ 50mV
TP101
TP102
Digital Voltmeter
KU-9333-1 TUNER UNIT
VR102
To output jack
CN102
IC102
LPF101
VR103
Distortion meter
IC104
LPF102
LPF103
IC105
CN101

1. FM adjustment (BAND button: FM, MONO/AUTO button: AUTO, RF ATT button: OFF)

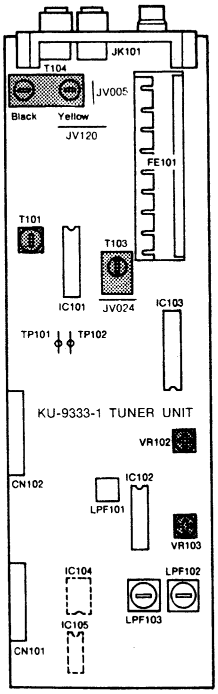
Step	Adjustment item	Tuning point (channel setting)	Input					Output		Adjustment location	Setting value	Notes
			Measuring Instrument	Frequency	Input level	Modulation	Connection location	Measuring instrument	Connection location			
1	FM DC balance	98.00MHz	FM S.G.	98.00MHz	60dB μ	1kHz 75kHz DEV	FM antenna terminal	Digital volt meter	TP101 TP102	T101	0±50mV	Perform with monaural modulation signal
2	Muting level	98.00MHz	FM S.G.	98.00MHz	17dB μ	1kHz 75kHz DEV	FM antenna terminal	Check for the lighting of TUNED	Output jack	VR102	Input level 17dB μ±4dB	(Level at which TUNED lights up) Level at which the output is provided Turn VR102 fully clockwise and adjust with VR102. It is not possible to adjust with VR102.
3	Stereo separation	〃	FM stereo modulator FM S.G.	〃	60dB μ	1kHz L or R: 67.5kHz DEV Pilot; 7.5kHz DEV	〃	VTVM Oscilloscope	〃	VR103	Minimum R.ch. Output	Perform with L.ch. Input of FM stereo modulator

2. AM adjustment (BAND button: AM)

Note: The AM IFT and MW ANT./OSC. coil are adjusted individually and normally do not require adjustment.

1	IF	Clear frequency (without a broadcast)	AM IF sweep	990kHz	Level at which AGC is not applied	–	AM antenna terminal	Oscilloscope	⊕ IC101 Pin ⑭ ⊖ JV024	T103	Waveform maximum and symmetry	
2	Band edge	522kHz	–	–	–	–	–	Digital voltmeter	⊕ JV120 ⊖ JV005	T104 Black	1.2V±0.2V	
		1611kHz								–	Approx. 7.5V	No place to adjust
3	Tracking	603kHz	AM S.G.	603kHz	Level at which ACG is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T104 Yellow	Maximum output	

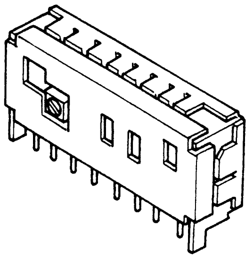
KU-9333-1 TUNER UNIT (Component Side)

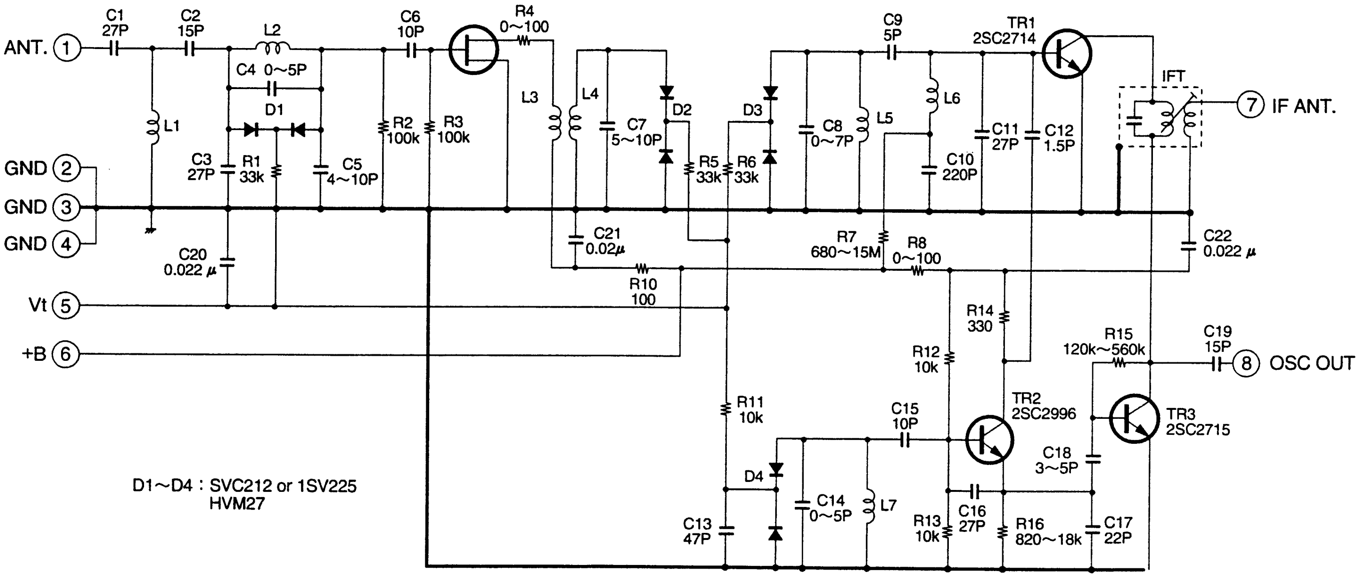


RECEIVER SECTION

Front End
Part No.: 216 0079 005

No.	Name	No.	Name
1	ANT	5	Vt
2	GND	6	+B
3	GND	7	IF OUT
4	GND	8	OSC OUT



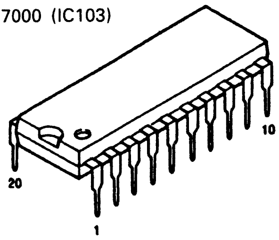

ANT. ①
GND ②
GND ③
GND ④
Vt ⑤
+B ⑥
⑦ IF ANT.
⑧ OSC OUT
C1 27P
C2 15P
L2
C4 0~5P
D1
L1
C3 27P
R1 33k
C5 4~10P
C20 0.022μ
C6 10P
R2 100k
R3 100k
R4 0~100
L3
L4
C7 5~10P
D2
C21 0.02μ
R10 100
R5 33k
R6 33k
D3
C8 0~7P
L5
C9 5P
L6
C10 220P
C11 27P
C12 1.5P
TR1 2SC2714
IFT
C22 0.022μ
R7 680~15M
R8 0~100
R14 330
R12 10k
R11 10k
C15 10P
TR2 2SC2996
R15 120k~560k
C19 15P
TR3 2SC2715
C18 3~5P
D4
C14 0~5P
L7
C13 47P
R13 10k
C16 27P
R16 820~18k
C17 22P
D1~D4 : SVC212 or 1SV225 HVM27

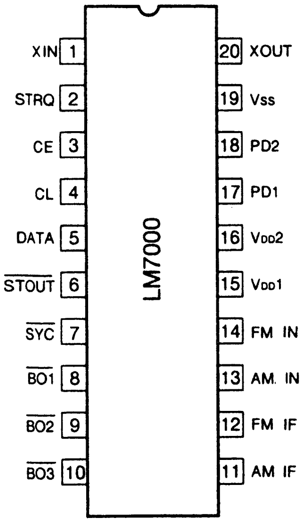
NOTES
1. TERMINAL NUMBER REFFER TO OVERALL APPEARANCE.
2. RECEIVING FREQUENCY. 87.5~108 MHz.
3. INPUT IMPEDANDE. 75 OHM.
4. OUTPUT IMPEDANCE. 300 OHM.
5. SUPPLY VOLTAGE. +B 12 V.
6. TUNING VOLTAGE. Vt 1.2 min~9.0 max V.

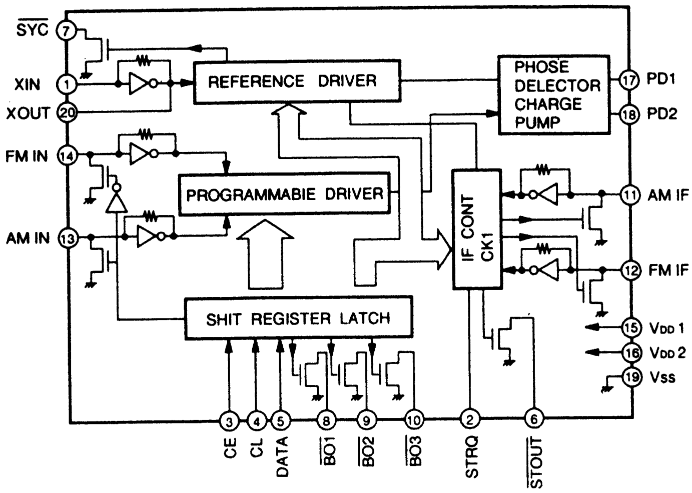
SEMICONDUCTORS

• IC's

LM7000 (IC103)



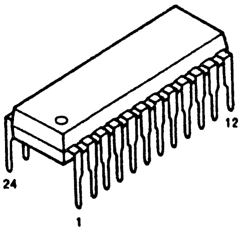

XIN 1
STRQ 2
CE 3
CL 4
DATA 5
STOUT 6
SYC 7
BO1 8
BO2 9
BO3 10
20 XOUT
19 Vss
18 PD2
17 PD1
16 VDD2
15 VDD1
14 FM IN
13 AM IN
12 FM IF
11 AM IF
LM7000

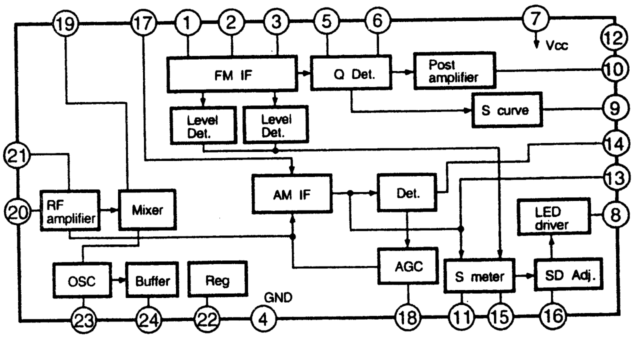

SYC 7
XIN 1
XOUT 20
FM IN 14
AM IN 13
REFERENCE DRIVER
PHOSE DELECTOR CHARGE PUMP
17 PD1
18 PD2
PROGRAMMABIE DRIVER
IF CONT CK1
11 AM IF
12 FM IF
SHIT REGISTER LATCH
15 VDD 1
16 VDD 2
19 Vss
3 CE
4 CL
5 DATA
8 BO1
9 BO2
10 BO3
2 STRQ
6 STOUT

Pin Description

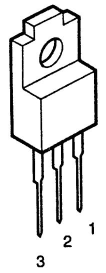
$\overline{\text{SYC}}$	: Clock (400 kHz) for the controller
XIN, XOUT	: X'tal oscillator (7.2 MHz) with built-in feedback resistor
FM IN, AM IN	: Local oscillator signal input
CE, CL, DATA	: Data input
$\overline{\text{BO1}}$, $\overline{\text{BO2}}$, $\overline{\text{BO3}}$	: Band data output. $\overline{\text{BO1}}$ can be set as the time base output (8 Hz).
STRQ	: IF counter request input
$\overline{\text{STOUT}}$	: Auto research stop signal output
$V_{DD}1$, $V_{DD}2$, V_{SS}	: Power supply ($V_{DD}2$ is a back-up power supply)
AM IF, FM IF	: IF signal input
PD1, PD2	: Charge pump output

LA1267 (IC101)

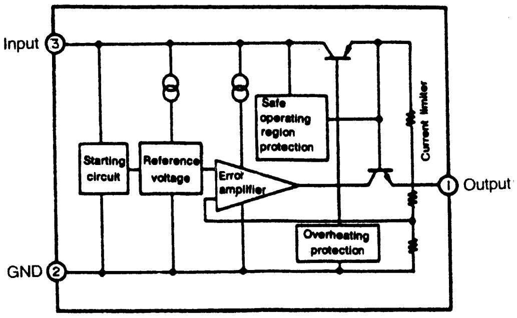



19
17
1
2
3
5
6
7
Vcc
12
FM IF
Q Det.
Post amplifier
10
S curve
9
Level Det.
Level Det.
14
21
AM IF
Det.
13
20
RF amplifier
Mixer
LED driver
8
OSC
Buffer
Reg
AGC
S meter
SD Adj.
GND
23
24
22
4
18
11
15
16

BA178M06 (IC401) ... +6V
BS178M12 (IC403) ... +12V

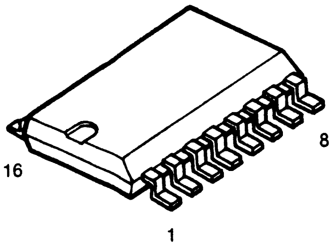


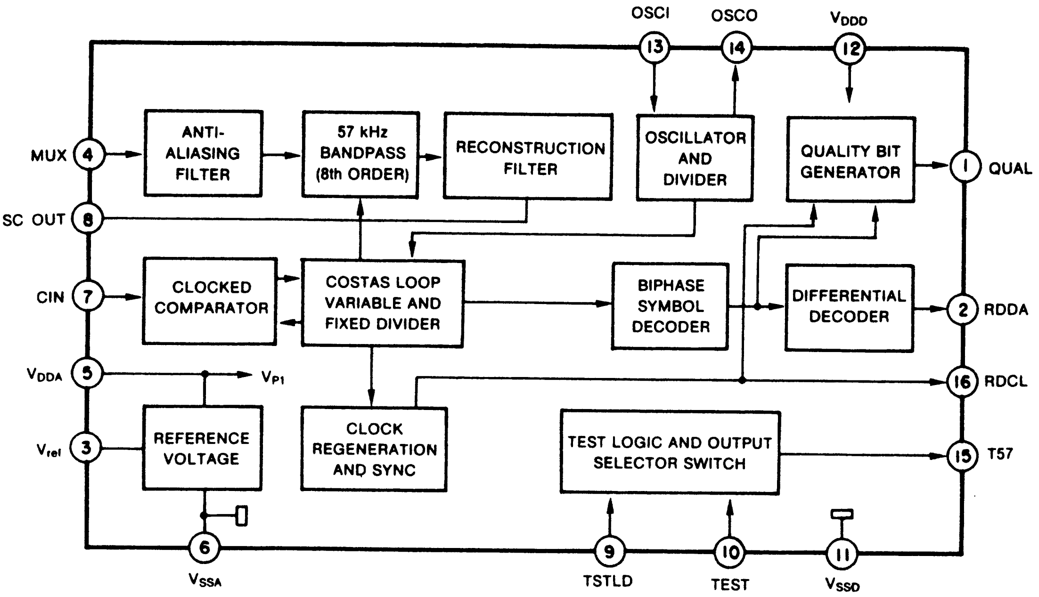
1 : Output
2 : GND
3 : Input


Input 3
Safe operating region protection
Current limiter
Starting circuit
Reference voltage
Error amplifier
1 Output
Overheating protection
GND 2

RECEIVER SECTION

SAA6579T (IC104)



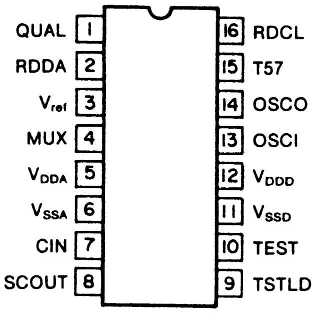

OSCI
OSCO
VDDD
13
14
12
MUX
4
ANTI-ALIASING FILTER
57 kHz BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
1
QUAL
SC OUT
8
CIN
7
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXED DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
2
RDDA
VDDA
5
VP1
16
RDCL
Vref
3
REFERENCE VOLTAGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
15
T57
6
VSSA
9
TSTLD
10
TEST
11
VSSD

Block diagram and application circuit.

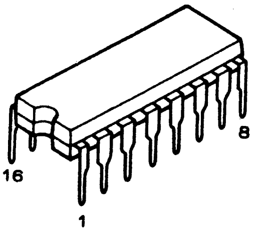
Pin Description

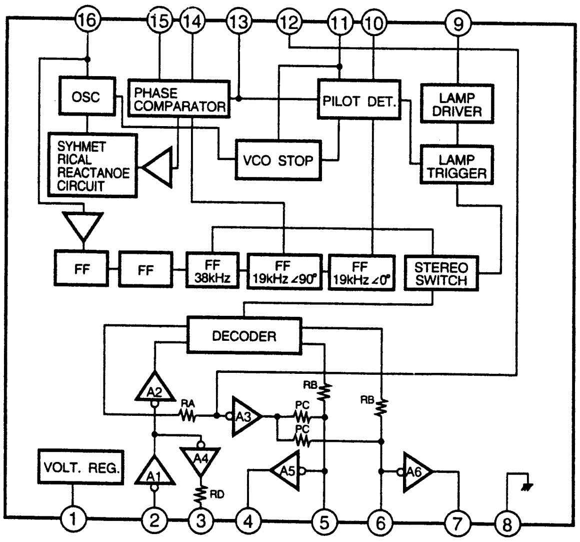
SYMBOL	PIN	DESCRIPTION
QUAL	1	quality indication output
RDDA	2	RDS data output
Vref	3	reference voltage output (0.5 V_{DDA})
MUX	4	multiplex signal input
V_{DDA}	5	+5 V supply voltage for analog part
V_{SSA}	6	ground for analog part (0 V)
CIN	7	subcarrier input to comparator
SCOUT	8	subcarrier output of reconstruction filter
TSTLD	9	test control
TEST	10	test enable
V_{SSD}	11	ground for digital part (0 V)
V_{DDD}	12	+5 V supply voltage for digital part
OSCI	13	oscillator input
OSCO	14	oscillator output
T57	15	57 kHz clock signal output
RDCL	16	RDS clock output

Pin configuration

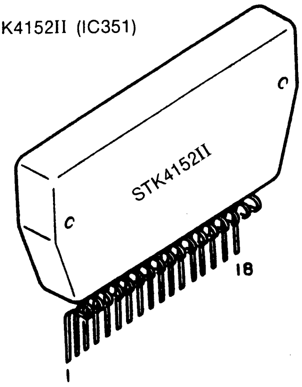

QUAL 1
RDDA 2
Vref 3
MUX 4
VDDA 5
VSSA 6
CIN 7
SCOUT 8
16 RDCL
15 T57
14 OSCO
13 OSCI
12 VDDD
11 VSSD
10 TEST
9 TSTLD

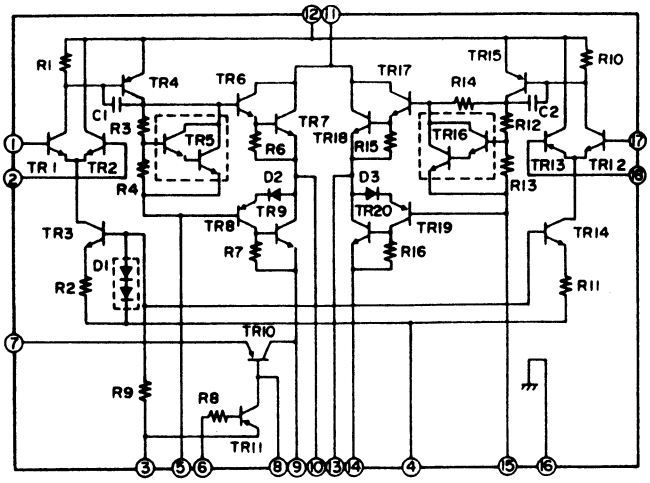
LA3410 (IC102)



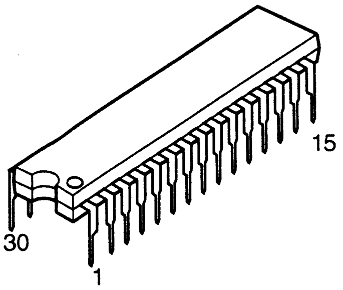

16
15
14
13
12
11
10
9
OSC
PHASE COMPARATOR
PILOT DET.
LAMP DRIVER
SYHMET RICAL REACTANOE CIRCUIT
VCO STOP
LAMP TRIGGER
FF
FF
FF 38kHz
FF 19kHz ∠90°
FF 19kHz ∠0°
STEREO SWITCH
DECODER
A2
RA
A3
RB
PC
PC
RB
VOLT. REG.
A1
A4
RD
A5
A6
1
2
3
4
5
6
7
8

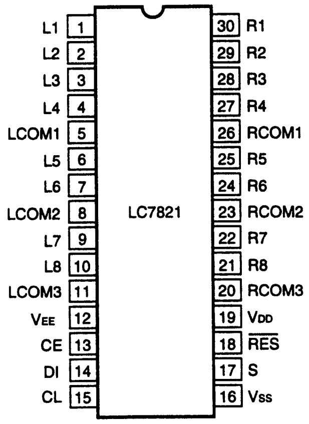
STK4152II (IC351)

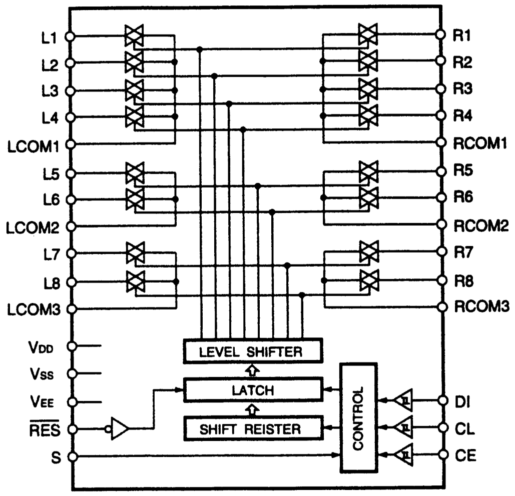

STK4152II
1
18


⑫⑪
R1
TR4
TR6
TR17
TR15
R10
R14
C1
R3
TR5
TR7
TR18
R15
TR16
R12
C2
①
TR1
TR2
R6
TR13
TR12
⑰
②
R4
D2
D3
R13
⑱
TR9
TR20
TR3
TR8
TR19
TR14
R7
R16
D1
R2
R11
⑦
TR10
R9
R8
TR11
③ ⑤⑥ ⑧⑨⑩⑬⑭ ④ ⑮ ⑯

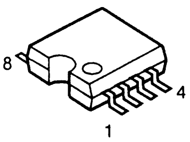
LC7821 (IC502)

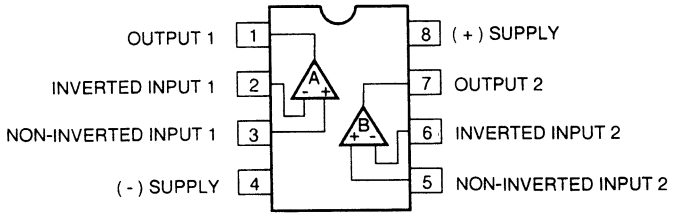



L1 1
L2 2
L3 3
L4 4
LCOM1 5
L5 6
L6 7
LCOM2 8
L7 9
L8 10
LCOM3 11
VEE 12
CE 13
DI 14
CL 15
LC7821
30 R1
29 R2
28 R3
27 R4
26 RCOM1
25 R5
24 R6
23 RCOM2
22 R7
21 R8
20 RCOM3
19 VDD
18 RES
17 S
16 Vss

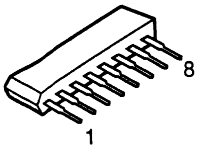

L1
L2
L3
L4
LCOM1
L5
L6
LCOM2
L7
L8
LCOM3
VDD
Vss
VEE
RES
S
R1
R2
R3
R4
RCOM1
R5
R6
RCOM2
R7
R8
RCOM3
LEVEL SHIFTER
LATCH
SHIFT REISTER
CONTROL
DI
CL
CE

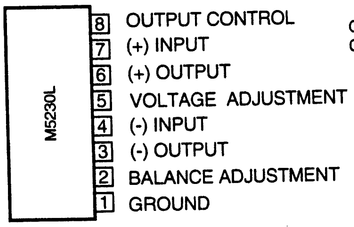
BA15218F (IC506, 601, 602, 603)
NJM2082MD (IC501)
M5230L (IC702)

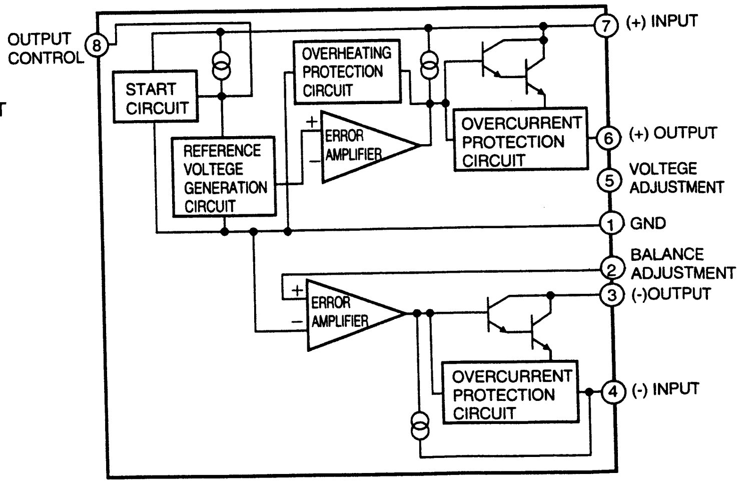



OUTPUT 1 1
INVERTED INPUT 1 2
NON-INVERTED INPUT 1 3
(-) SUPPLY 4
A
B
8 (+) SUPPLY
7 OUTPUT 2
6 INVERTED INPUT 2
5 NON-INVERTED INPUT 2

M5230L (IC702)

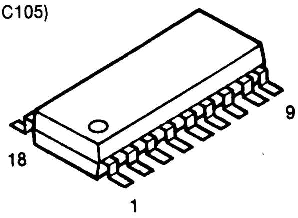



M5230L
8 OUTPUT CONTROL
7 (+) INPUT
6 (+) OUTPUT
5 VOLTAGE ADJUSTMENT
4 (-) INPUT
3 (-) OUTPUT
2 BALANCE ADJUSTMENT
1 GROUND

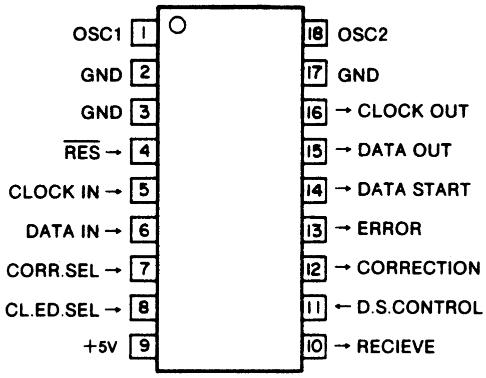

OUTPUT CONTROL ⑧
START CIRCUIT
OVERHEATING PROTECTION CIRCUIT
REFERENCE VOLTEGE GENERATION CIRCUIT
ERROR AMPLIFIER
OVERCURRENT PROTECTION CIRCUIT
⑦ (+) INPUT
⑥ (+) OUTPUT
⑤ VOLTEGE ADJUSTMENT
① GND
② BALANCE ADJUSTMENT
③ (-)OUTPUT
ERROR AMPLIFIER
OVERCURRENT PROTECTION CIRCUIT
④ (-) INPUT

RECEIVER SECTION

LC7070NM (IC105)



Pin Arrangement

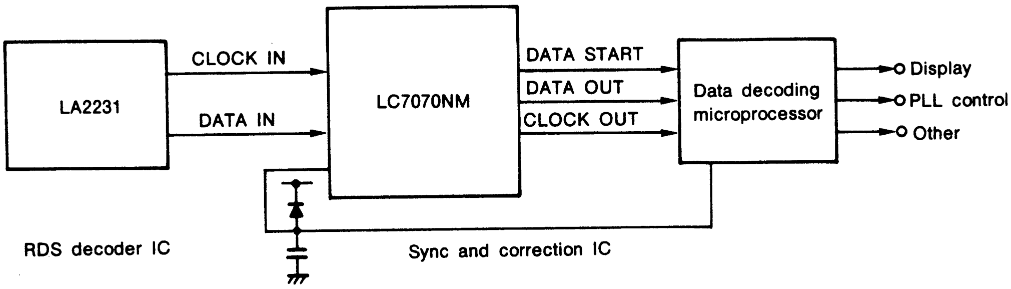


• Pin Description

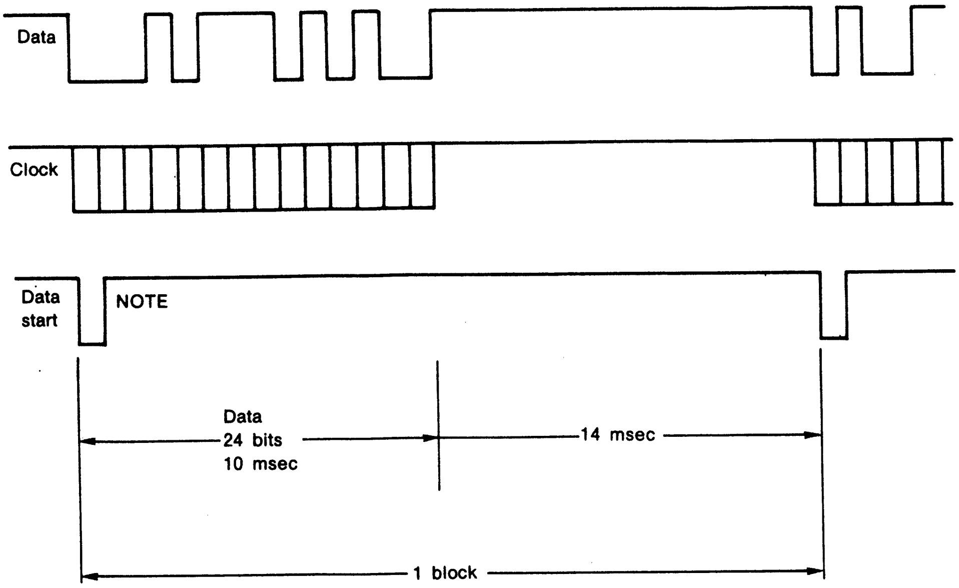
Symbol	Pin No.	I/O	Function/Details	At Time of Reset
OSC1 OSC2	1 18	Input Output	· 4 MHz ceramic oscillator connection.	
CLOCK IN	5	Input	· RDS (LA2231) demodulation clock input.	"H" output
DATA IN	6	Input	· RDS (LA2231) demodulation data input.	"H" output
CORR. SEL	7	Input	· Error correction on/off selection input. · Sets the IC to correct errors in the RDS demodulation data or to output the data without correction. When input is 0 : No corrections are made When input is 1 : Corrections are executed	"H" output
CL. ED. SEL	8	Input	· Serial data clock polarity selection input. When input is 0 : Serial data output is enabled at the rise of the ouptut clock. (Serial data output changes at the fall of the output clock.) When input is 1 : Serial data output is enabled at the fall of the output clock. (Serial data output changes at the rise of the output clock.) **NOTE:** Set at the time of RES input.	"H" output
D.S. CONTROL	11	Input	· Block data start signal control input. When input is 0 : Data start signal is output for all blocks. When input is 1 : Data start signal is output for only the second block.	"H" output
RECEIVE	10 (NC)	Output	· Output during RDS data reception. · After the completion of sync detection, there is a low-level, output while the serial data is being output. There is a high-level output at other times. · Open drain output.	"H" output
CORRECTION	12 (NC)	Output	· Output with or without error correction. · There is a low-level output when the output data of the serial data output have been corrected or when correction is not possible. There is a high-level output when correction has not been applied. · Open drain output.	"H" output
ERROR	13 (NC)	Output	· Presence of error output. · There is a low-level output when the output data of the serial data output has an error and correction is not possible. There is a high-level output when there is no error or when the error has been corrected. · Open drain output.	"H" output
DATA START	14	Output	· Block data start signal of the serial data output. Open drain output: LC7070N and LC7070NM Output with pull-up resistor: LC7071NM	"H" output

Symbol	Pin No.	I/O	Function/Details	At Time of Reset
DATA OUT	15	Output	· Data output of the serial data output. Open drain output: LC7070N and LC77070NM Output with pull-up resistor: LC7071NM	"H" output
CLOCK OUT	16	Output	· Clock output of the serial data output. Open drain output: LC7070N and LC77070NM Output with pull-up resistor: LC7071NM	"H" output
$\overline{\text{RES}}$	4	Input	· System reset input. · Reset and restart is accomplished by inputting the low level for 4 or more clock cycles.	

Structure of the RDS Data Processing System


LA2231
CLOCK IN
DATA IN
LC7070NM
DATA START
DATA OUT
CLOCK OUT
Data decoding microprocessor
Display
PLL control
Other
RDS decoder IC
Sync and correction IC

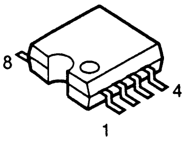
Serial Data Output Timing Chart

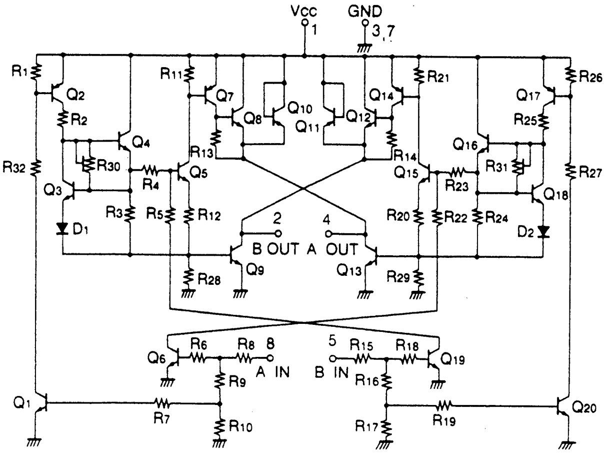

Data
Clock
Data start
NOTE
Data
24 bits
10 msec
14 msec
1 block

NOTE: Using the D.S. CONTROL input, only the second block among the entire 4 blocks of RDS data can be switched between the data start output and the total blocks' data start output.

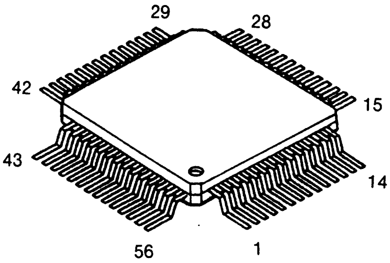
RECEIVER SECTION

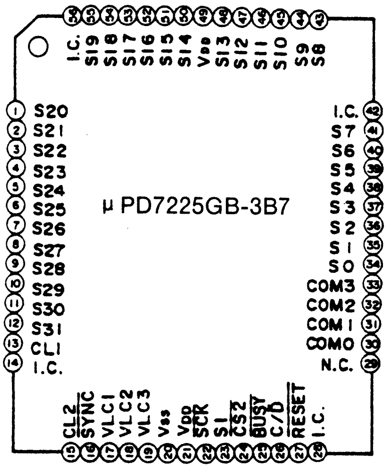
BA6208F (IN: IC604)



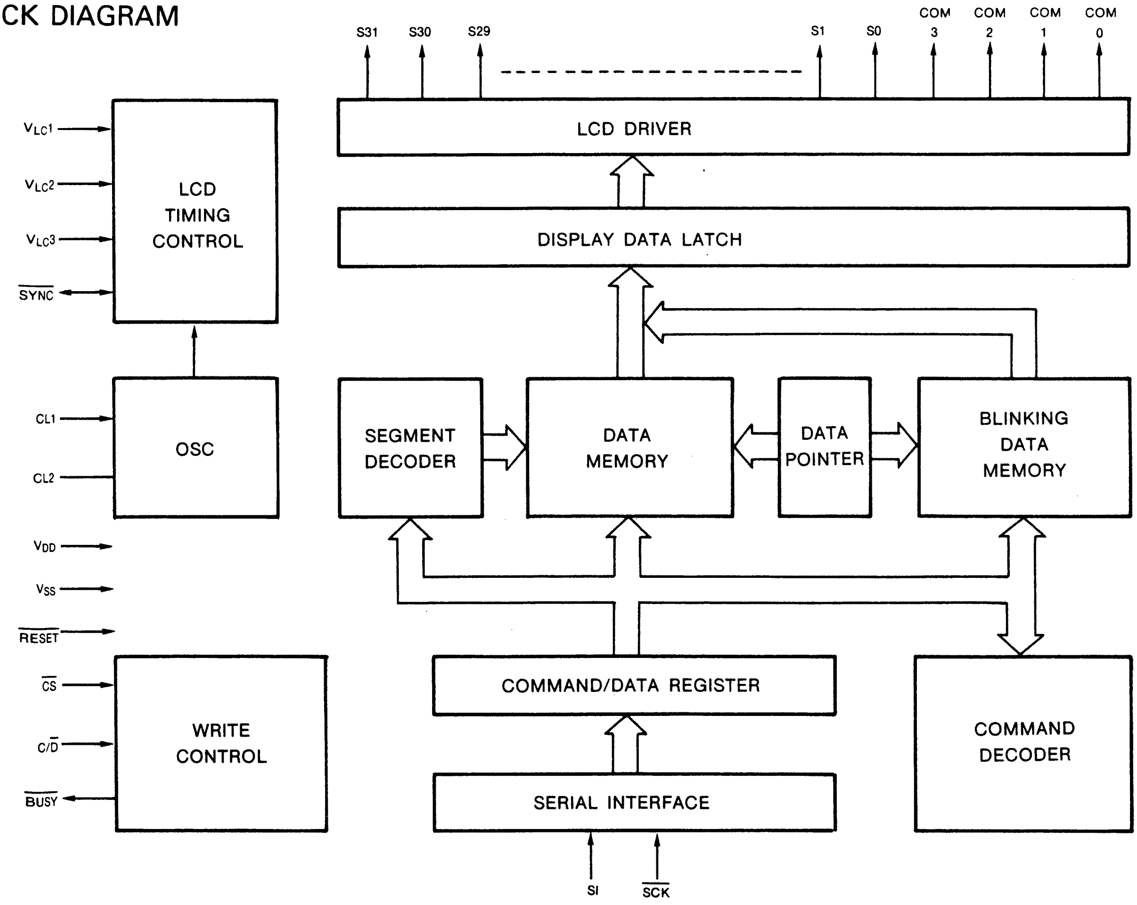

Vcc
1
GND
3,7
R1
Q2
R2
Q4
R30
R4
Q5
R32
Q3
D1
R3
R5
R12
R11
Q7
Q8
Q10
Q11
Q12
Q14
R13
R14
R21
R26
Q17
R25
Q16
R31
R27
Q15
R23
Q18
R20
R22
R24
D2
2
B OUT
4
A OUT
Q9
Q13
R28
R29
R6
R8
8
A IN
5
R15
R18
B IN
Q6
R9
R16
Q19
Q1
R7
R10
R17
R19
Q20

μPD 7225GB-3B7 (IC301, 302)


29
28
42
15
43
14
56
1


μ PD7225GB-3B7
56 I.C.
55 S19
54 S18
53 S17
52 S16
51 S15
50 S14
49 VDD
48 S13
47 S12
46 S11
45 S10
44 S9
43 S8
1 S20
2 S21
3 S22
4 S23
5 S24
6 S25
7 S26
8 S27
9 S28
10 S29
11 S30
12 S31
13 CL1
14 I.C.
42 I.C.
41 S7
40 S6
39 S5
38 S4
37 S3
36 S2
35 S1
34 S0
33 COM3
32 COM2
31 COM1
30 COM0
29 N.C.
15 CL2
16 SYNC
17 VLC1
18 VLC2
19 VLC3
20 VSS
21 VDD
22 SCK
23 SI
24 CS2
25 BUSY
26 C/D
27 RESET
28 I.C.

BLOCK DIAGRAM


S31
S30
S29
S1
S0
COM 3
COM 2
COM 1
COM 0
LCD DRIVER
DISPLAY DATA LATCH
VLC1
VLC2
VLC3
SYNC
LCD TIMING CONTROL
CL1
CL2
OSC
SEGMENT DECODER
DATA MEMORY
DATA POINTER
BLINKING DATA MEMORY
VDD
VSS
RESET
CS
C/D
BUSY
WRITE CONTROL
COMMAND/DATA REGISTER
SERIAL INTERFACE
COMMAND DECODER
SI
SCK

1. Pin Functions

1.1 SI (Serial Input)...Input

This is an input pin for serial data (commands/data) which inputs 19 types of commands that control the data used for the display and the operation of the μPD7225.

1.2 $\overline{\text{SCK}}$ (Serial Clock)...Input

This is a shift clock for serial data (SI input). At the rising edge, the contents of the serial input (SI) are read to the serial register one bit at a time.

If the $\overline{\text{SCK}}$ input is "$\overline{\text{BUSY}}$ = 1" when "$\overline{\text{CS}}$ = 0", it becomes valid, if it is "$\overline{\text{BUSY}}$ = 0" it is ignored. The $\overline{\text{SCK}}$ input is ignored when "$\overline{\text{CS}}$ = 1" regardless of the relationship to "$\overline{\text{BUSY}}$".

1.3 C/$\overline{\text{D}}$ (Command Data)...Input

This input pin indicates whether the serial data input from the SI pin is a command or data. A low indicates data and a high indicates a command.

1.4 $\overline{\text{BUSY}}$...3-State Output

This is an active low output pin which indicates the prohibition or approval of the input serial data. A low indicates prohibition and a high indicates approval.

A high-impedance state is set when "$\overline{\text{CS}}$ = 1".

1.5 $\overline{\text{CS}}$ (Chip Select)...Input

Changing $\overline{\text{CS}}$ from high level to low level will clear the SCK counter of the μPD7225 and enable the input of serial data. At the same time, the data pointer is initialized to the 0 address. When $\overline{\text{CS}}$ is set to high level following the input of serial data, the contents of the data memory are read to the display data latch and displayed on the LCD.

1.6 $\overline{\text{SYNC}}$ (Synchronous)...Input/Output

The $\overline{\text{SYNC}}$ pin is an input/output pin which connects a wired OR in cases where the common is used together in multiple chip structures, and when taking sync of a blinking operation.

The $\overline{\text{SYNC}}$ pin outputs the signal derived by dividing the clock oscillation frequency (f_{CL}) by 4 when the μPD7225 is reset ($\overline{\text{RESET}}$ = 0). (See Figure 1.) The $\overline{\text{SYNC}}$ pin takes the sync of the system clock ($f_{CL}/4$) of each μPD7225 and after reset cancellation ($\overline{\text{RESET}}$ = 1), takes the sync of the display timing of each μPD7225 at the timing of the common drive signal illustrated in Figure 2.

Figure 1. Condition of the $\overline{\text{SYNC}}$ Pin During Reset ($\overline{\text{RESET}}$ = 0)

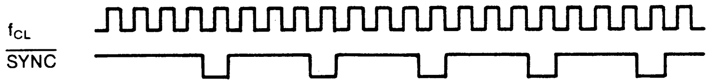
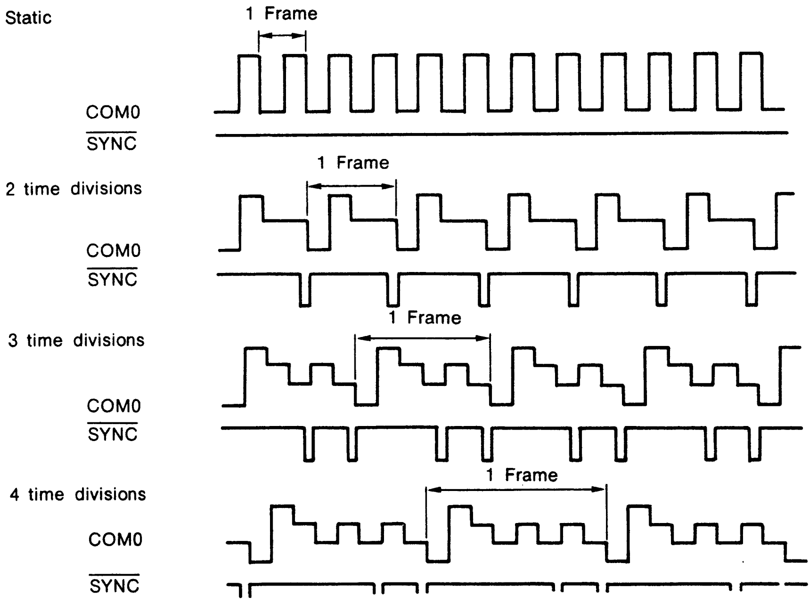


Figure 2. Condition of the $\overline{\text{SYNC}}$ Pin After Reset Cancellation ($\overline{\text{RESET}}$ = 1)



1.7 $\overline{\text{RESET}}$...Input

This is an active-low reset input pin.

1.8 S0 through S31 (Segment)...Output

These are segment drive signal output pins.

1.9 COM0 through COM5 (Common)...Output

These are common drive signal output pins.

1.10 CL1 and CL2 (Clock)

These are connection pins for resistor (R) which is used for the internal clock oscillation. Input is made to pin CL1 when the clock is supplied externally.

1.11 $V_{LC}1$, $V_{LC}2$, and $V_{LC}3$

These are the LCD drive power supply pins.

1.12 V_{DD}

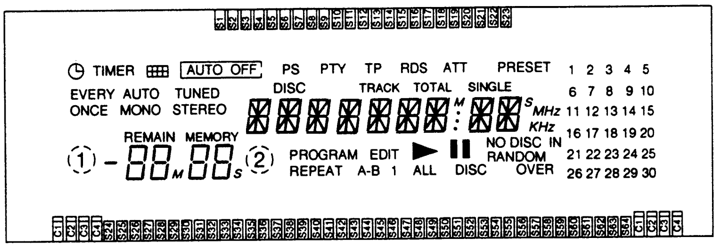
These are the positive power supply pins. Either pin number 7 or number 33 can be used.

1.13 V_{SS}

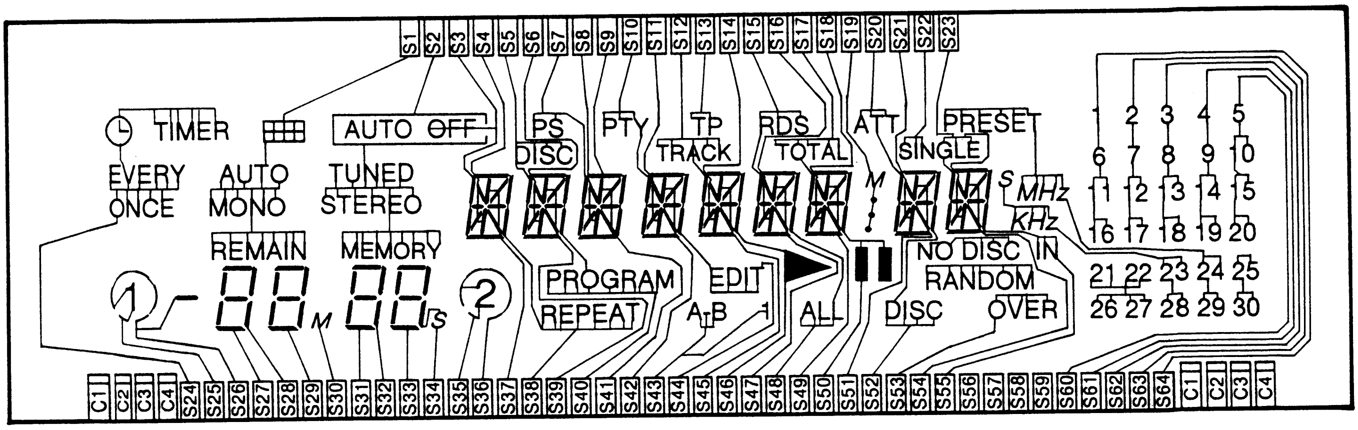
This pin is at ground potential.

RECEIVER SECTION

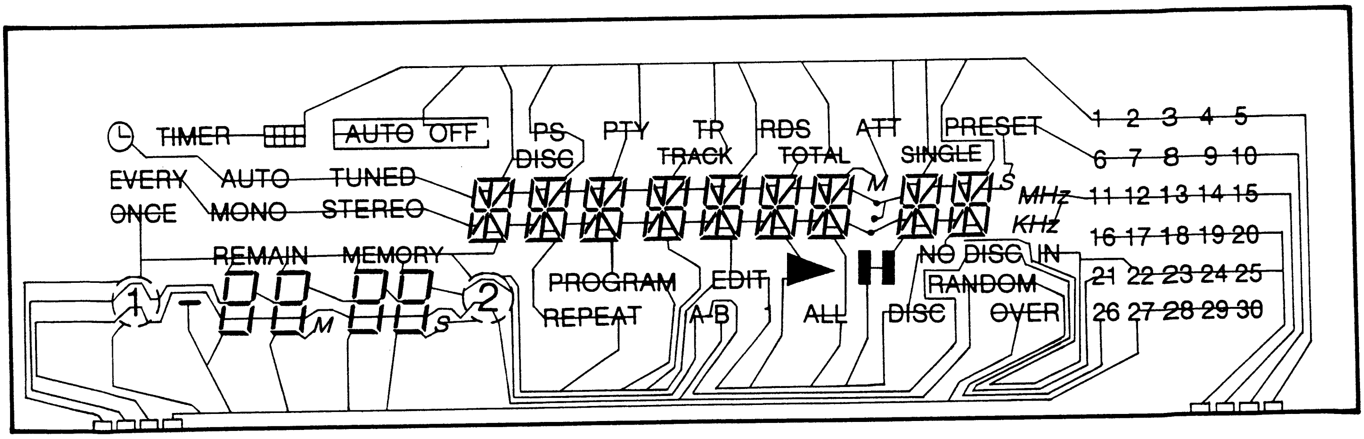
● LCD ASS'Y (CG1206)
(Part No.: 393 6006 007)


S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23
TIMER
AUTO OFF
PS PTY TP RDS ATT PRESET
DISC TRACK TOTAL SINGLE
EVERY AUTO TUNED
ONCE MONO STEREO
M S MHz KHz
REMAIN MEMORY
NO DISC IN
RANDOM
PROGRAM EDIT
REPEAT A-B 1 ALL DISC OVER
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
C1 C2 C3 C4 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35 S36 S37 S38 S39 S40 S41 S42 S43 S44 S45 S46 S47 S48 S49 S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60 S61 S62 S63 S64 C1 C2 C3 C4

Segment

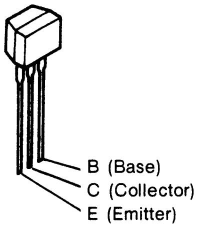

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23
TIMER
AUTO OFF
PS PTY TP RDS ATT PRESET
DISC TRACK TOTAL SINGLE
EVERY AUTO TUNED
ONCE MONO STEREO
M S MHz KHz
REMAIN MEMORY
NO DISC IN
RANDOM
PROGRAM EDIT
REPEAT A-B 1 ALL DISC OVER
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
C1 C2 C3 C4 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35 S36 S37 S38 S39 S40 S41 S42 S43 S44 S45 S46 S47 S48 S49 S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60 S61 S62 S63 S64 C1 C2 C3 C4

Common

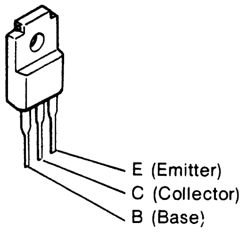

TIMER
AUTO OFF
PS PTY TP RDS ATT PRESET
DISC TRACK TOTAL SINGLE
EVERY AUTO TUNED
ONCE MONO STEREO
M S MHz KHz
REMAIN MEMORY
NO DISC IN
RANDOM
PROGRAM EDIT
REPEAT A-B 1 ALL DISC OVER
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30

● Transistors

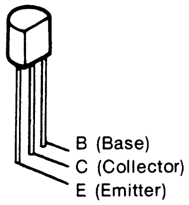
2SA933S (S)
2SC1740S (S)


B (Base)
C (Collector)
E (Emitter)

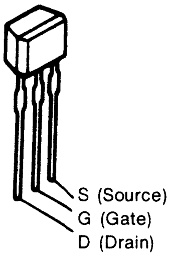
2SD1762 (E/F)


E (Emitter)
C (Collector)
B (Base)

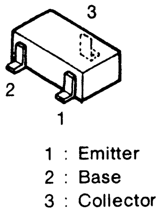
2SA935 (Q)
2SB1306 (Q/R)
2SC461 (C)
2SC2061 (Q)
2SC2390 (S)


B (Base)
C (Collector)
E (Emitter)

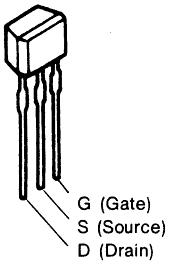
2SK365 (BL/GR)


S (Source)
G (Gate)
D (Drain)

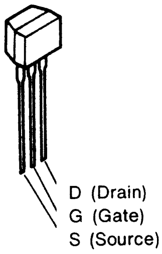
2SC2412K (S), (LN)


3
2
1
1 : Emitter
2 : Base
3 : Collector

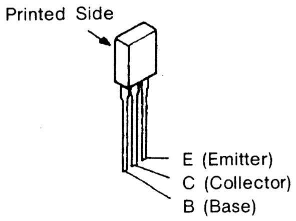
2SK161 (GR)


G (Gate)
S (Source)
D (Drain)

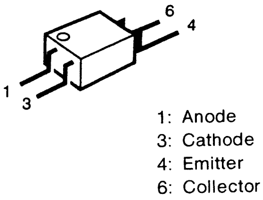
2SJ40 (C/D)


D (Drain)
G (Gate)
S (Source)

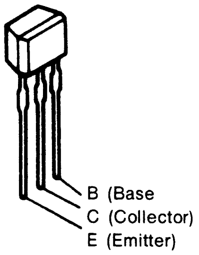
2SB1328 (P/Q)


Printed Side
E (Emitter)
C (Collector)
B (Base)

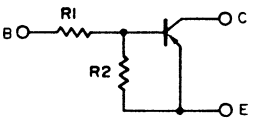
TLP181 (BL/GR)


6
4
1
3
1: Anode
3: Cathode
4: Emitter
6: Collector

DTA114ES } PNP Type
DTA144ES
DTC114ES } NPN Type
DTC144ES
DTC124TS
DTC323TS
DTC124GS
DTC143TS

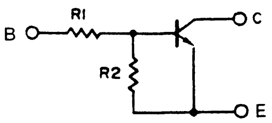

B (Base
C (Collector)
E (Emitter)

PNP Type



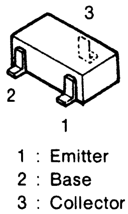
	R1	R2
DTA114ES	10k ohm	10k ohm
DTA144ES	47k ohm	47k ohm

NPN Type

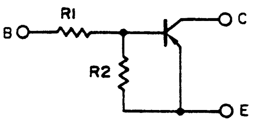


	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm

DTA114EK PNP Type
DTC114EK } NPN Type
DTC323TK
DTC143TK

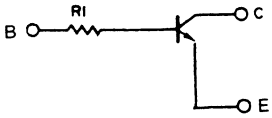

3
2
1
1 : Emitter
2 : Base
3 : Collector

PNP Type



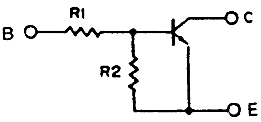
	R1	R2
DTA114EK	10k ohm	10k ohm

NPN Type



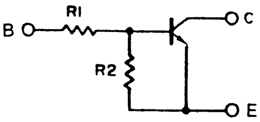
	R1
DTC143TK	4.7k ohm
DTC124TS	22k ohm
DTC323TS	2.2k ohm

NPN Type



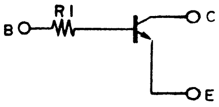
	R2
DTC124GS	22k ohm

NPN Type



	R1	R2
DTC114EK	10k ohm	10k ohm

NPN Type

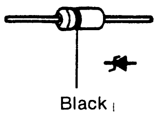


	R1
DTC323TK	2.2k ohm

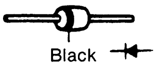
RECEIVER SECTION

● Diodes (including LED)

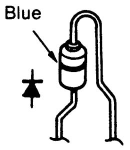
MTZJ3.3A
MTZJ3.6A
MTZJ6.8A
MTZJ8.2B
MTZJ12A
MTZJ22A



1SS252

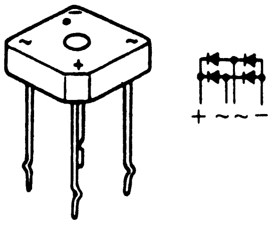


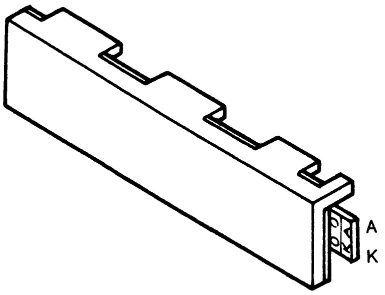
1SR35-200A



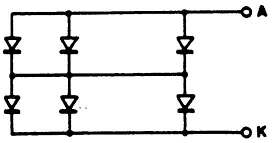
LED (SLF-351D) Ass'y
Part No. 393 9470 009 (D306)

S4VB20F (D711)



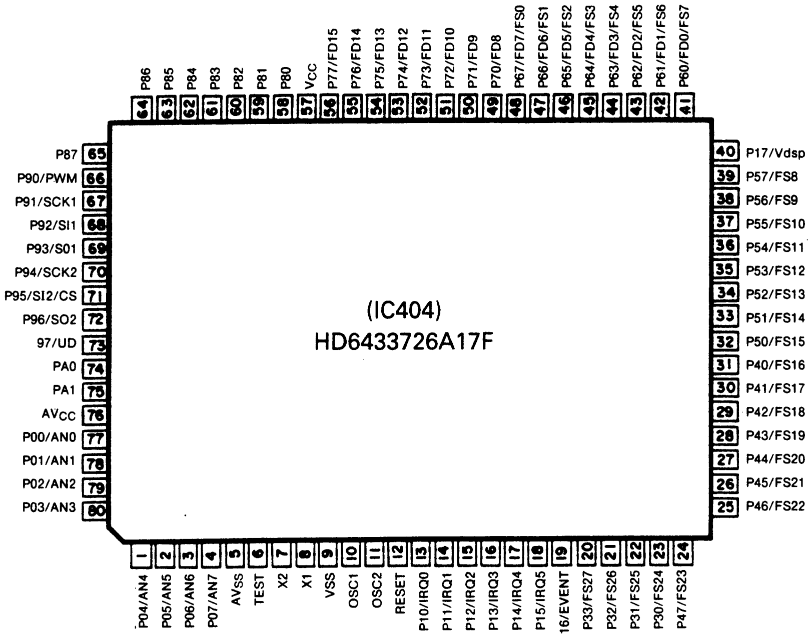


- Wiring diagram



2 in series, 22 parallel = 44 chips

MICROPROCESSOR DOCUMENTATION
HD6433726A17F (IC404)


(IC404)
HD6433726A17F
1 P04/AN4
2 P05/AN5
3 P06/AN6
4 P07/AN7
5 AVss
6 TEST
7 X2
8 X1
9 VSS
10 OSC1
11 OSC2
12 RESET
13 P10/IRQ0
14 P11/IRQ1
15 P12/IRQ2
16 P13/IRQ3
17 P14/IRQ4
18 P15/IRQ5
19 P16/EVENT
20 P33/FS27
21 P32/FS26
22 P31/FS25
23 P30/FS24
24 P47/FS23
25 P46/FS22
26 P45/FS21
27 P44/FS20
28 P43/FS19
29 P42/FS18
30 P41/FS17
31 P40/FS16
32 P50/FS15
33 P51/FS14
34 P52/FS13
35 P53/FS12
36 P54/FS11
37 P55/FS10
38 P56/FS9
39 P57/FS8
40 P17/Vdsp
41 P60/FD0/FS7
42 P61/FD1/FS6
43 P62/FD2/FS5
44 P63/FD3/FS4
45 P64/FD4/FS3
46 P65/FD5/FS2
47 P66/FD6/FS1
48 P67/FD7/FS0
49 P70/FD8
50 P71/FD9
51 P72/FD10
52 P73/FD11
53 P74/FD12
54 P75/FD13
55 P76/FD14
56 P77/FD15
57 Vcc
58 P80
59 P81
60 P82
61 P83
62 P84
63 P85
64 P86
65 P87
66 P90/PWM
67 P91/SCK1
68 P92/SI1
69 P93/S01
70 P94/SCK2
71 P95/SI2/CS
72 P96/SO2
73 97/UD
74 PA0
75 PA1
76 AVcc
77 P00/AN0
78 P01/AN1
79 P02/AN2
80 P03/AN3

1. Overview

The functions of this microcomputer are made up of the following three pillars.

a. Tuner functions

These functions perform the required control for the reception of FM and AM broadcasts.

b. Auto functions

Positioned at the heart of the system stereo, the auto functions perform serial communications with other components (such as the deck, CD and amplifier) to provide overall control.

These functions decoder the signals from the remote control and send them to each component of the system.

c. Timer functions

Counts the clock of the 24 hour display.

Operates the three kinds of timers: Every Day, Once and Sleep.

Note 1) When the power cord is plugged in with the CB990's pin 1 and 2 short-circuited and MEMO pushed in, the following tracking adjustment frequencies are automatically stored in the preset memory. Use these for adjustment, etc. After setting the preset memory, undo the short circuit between CB990 pins 1 and 2.

	P1	P2	P3	P4	P5	P6
AM	522kHz	603kHz	999kHz	1098kHz	1404kHz	1611kHz

	P11	P12	P13	P14	P15
FM	87.50MHz	89.00MHz	98.00MHz	100.10MHz	108.00MHz

Note 2) When the powr cord is plugged in while pressing both keys MEMO and AUTO TUNING DOWN, the entire memory is initialized and the microcomputer operates from the beginning of the program. If there are any problems in the frequency presetting or the time display, follow this procedure for proper start-up.

Note 3) When the power cord is plugged in the while pressing both keys MEMO and TIMER, the entire LCD will alternatively light up and down. To return to the normal mode from this mode, unplug the power cord, and then plug it back in.

Note 4) When the power cord is plugged in while pressing both keys MEMO and AUTO TUNING UP, can set the power on without DENON display. To return to the normal mode from this mode, unplug the power cord, and then plug it back in.

RECEIVER SECTION

2. Receiving Band Table

Band	Receiving frequency	Local oscillator frequency	IF	Frequency division ratio	Comparison frequency	Step frequency	Other
FM	87.50~108.00MHz	98.20~118.70MHz	10.7MHz	1	25kHz	50kHz	
AM	522~1611kHz	972~2061kHz	450kHz	–	9kHz	9kHz	

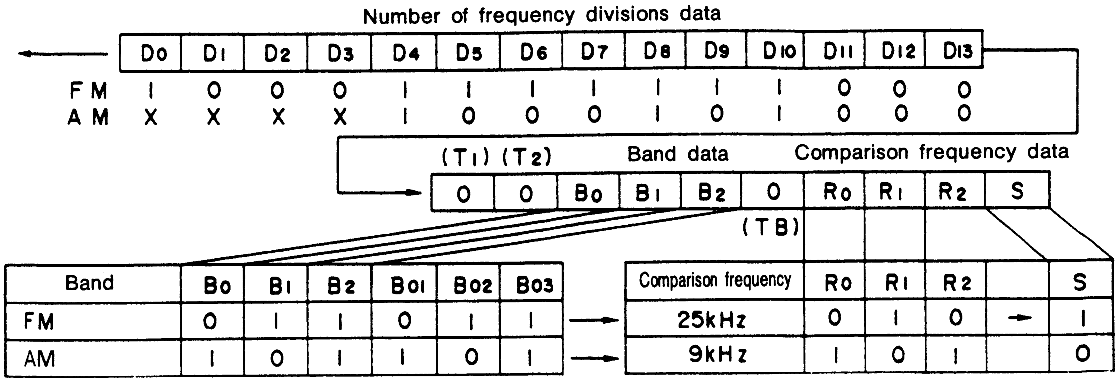
3. Signals sent to the LM7000 Programmable Divider

a. Signals to the programmable divider are sent from 3 sources: CE OUT, CLOCK OUT, and DATA OUT.

b. The programmable divider takes in DATA at CLOCK ↑, when CE equals 1.

c. The data is a 24-bit serial signal which is taken in to the programmable divider from the LSB. (At the AM setting, D_0 through D_3 are ignored, so that D_4 becomes the LSB.)

d. The data is made up of the number of frequency divisions data, the band data, and the comparison frequency data. (See diagram below.)



Number of frequency divisions data

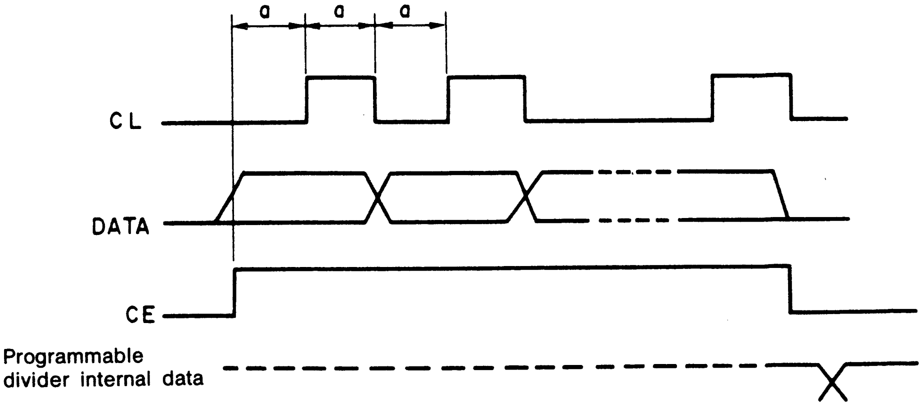
	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
FM	1	0	0	0	1	1	1	1	1	1	1	0	0	0
AM	X	X	X	X	1	0	0	0	1	0	1	0	0	0

(T1)	(T2)	Band data			(TB)	Comparison frequency data			
0	0	B0	B1	B2	0	R0	R1	R2	S

Band	B0	B1	B2	B01	B02	B03
FM	0	1	1	0	1	1
AM	1	0	1	1	0	1

Comparison frequency	R0	R1	R2		S
25kHz	0	1	0	→	1
9kHz	1	0	1		0

e. Timing for sending
a = 2.5 μsec



• Pin Description (HD6433726A17F)

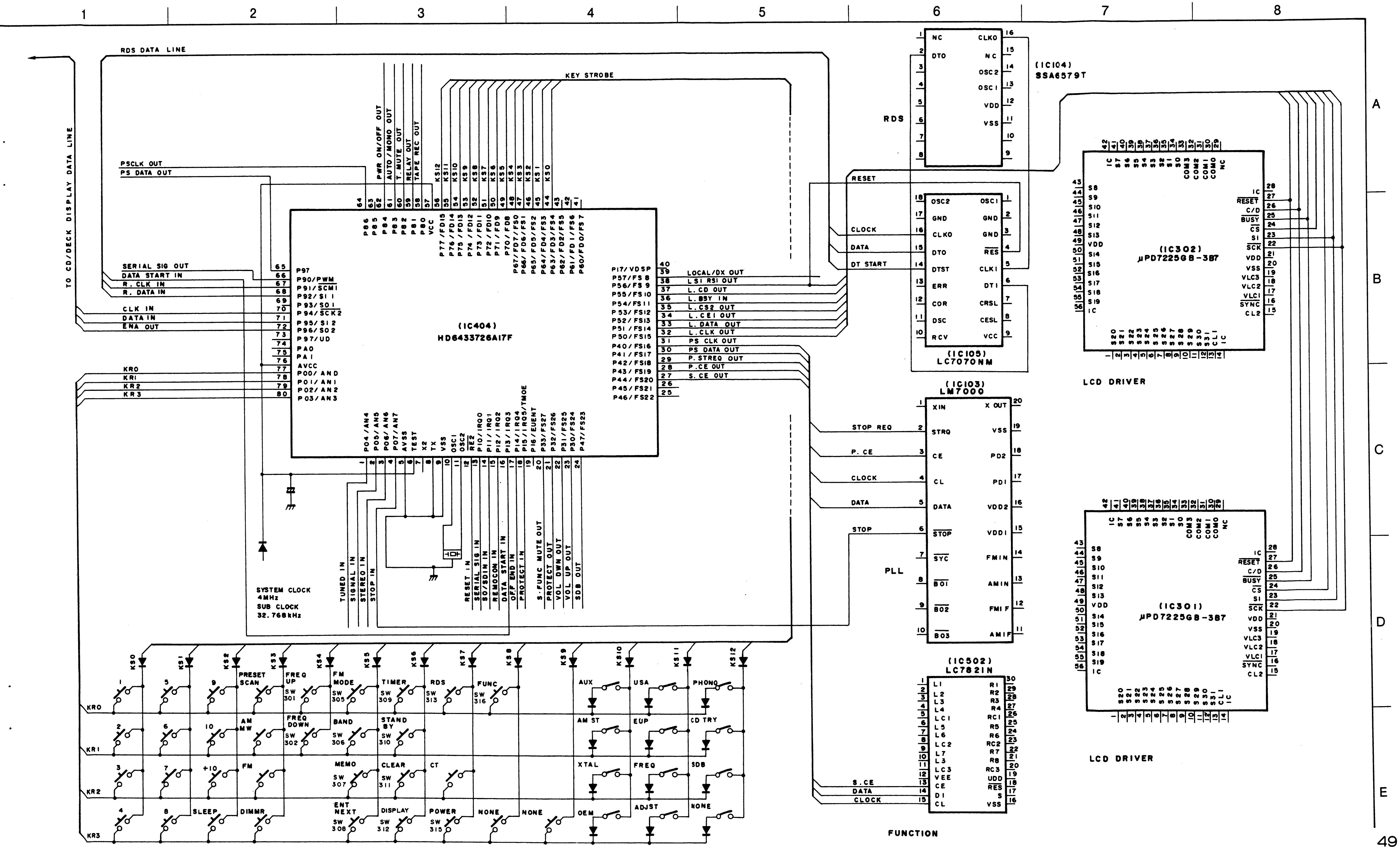
Pin	Pin No.	I/O	DFL	ACT	PUD	Function Name	Use	Function Definition	
1	P04/AN4	I	H	L	U	_TUNED IN	TUNER	Tuning signal input	TUNED=L
2	P05/AN5	I	H	L	U	_SIGNAL IN	TUNER	Tuning signal input	SIGNAL IN=L
3	P06/AN6	I	H	L	U	_STEREO IN	TUNER	Stereo mode status input	STEREO=L
4	P07/AN7	I	H	L	U	_STOP IN	PLL	PLL stop signal input	STOP=L
5	AV_{SS}	I	–	–	–	GND		Ground	
6	TEST	I	–	–	–			Connect to Vcc pin.	
7	X2	O	–	–	–	SUB CLOCK		Sub clock oscillator pin	
8	X1	I	–	–	–	SUB CLOCK		32,768 kHz	
9	V_{SS}	–	–	–	–	GND		Ground	
10	OSC1	I	–	–	–	SYSTEM CLOCK		System clock oscillator pin	
11	OSC2	O	–	–	–	SYSTEM CLOCK		4.0 MHz	
12	RESET	I	–	–	–			System reset pin	
13	P10/IRQ0	I	H	L	U	_SERIAL SIG IN		Denon bus input pin	
14	P11/IRQ1	I	H	L	U	50/60 Hz IN		Detection input of 50 Hz and 60 Hz pulses	PULSE
15	P12/IRQ2	I	H	L	U	_REMOCON IN		Remote control signal input pin	
16	P13/IRQ3	I	H	L	U	_DATA START IN		RDS data start signal input	STROBE=L
17	P14/IRQ4	I	H	L	U	_OFF ENA IN		CD and deck loader close detection input	OFF ENABLE=L
18	P15/IRQ5	I	L	H	U	PROTECT IN	AMP	SP pin fault detection input pin	DETECT=H
19	P16/EVENT	I			U	NOT USED			
20	P33/FS27	O	L	L	D	_S. FUNC MUTE OUT	AMP	Function switching mute output pin	MUTE ON=L
21	P32/FS26	O	L	H	D	PROTECT OUT	AMP	Protection circuit drive output	PROTECT ON=H
22	P31/FS25	O	L	H	D	VOL DWN OUT	AMP	Volume driver drive output	DOWN=L
23	P30/FS24	O	L	H	D	VOL UP OUT	AMP	Volume driver drive output	UP=L
24	P47/FS23	O	H	L	D	_SDB OUT	AMP	SDB on/off, SDB circuit drive output	SDB ON=L
25	P46/FS22	–	–	–	–				
26	P45/FS21	–	–	–	–				
27	P44/FS20	O	L	H	D	S. OE OUT	FUNC (LC7821)	Function switching data, chip select	
28	P43/FS19	O	L	H	D	P. OE OUT	PLL (LM7000)	PLL data output, chip select	
29	P42/FS18	O	L	H	D	P. STREQ OUT	PLL (LM7000)	PLL data output, stop request	
30	P41/FS17	O	L	H	D	PS. DATA OUT	LM7000, LC7821	PLL and function data output	
31	P40/FS16	O	L	H	D	PS CLK OUT	LM7000, LC7821	PLL and function clock output	
32	P50/FS15	O	L	H	D	L. CLK OUT	DSPLY (UPD7225G)	LCD display driver data output	
33	P51/FS14	O	L	H	D	L. DATA OUT	DSPLY (UPD7225G)	LCD display driver data output	
34	P52/FS13	O	H	L	D	_L. CE1 OUT	DSPLY (UPD7225G)	LCD display driver data output (Chip select 1)	CHIP SEL=L
35	P53/FS12	O	H	L	D	_L. CE2 OUT	DSPLY (UPD7225G)	LCD display driver data output (Chip select 2)	CHIP SEL=L
36	P54/FS11	I	H	L	U	_L. BSY IN	DSPLY (UPD7225G)	LCD display driver data output, busy input	BUSY=L
37	P55/FS10	O	L	H	D	L. C/_D OUT	DSPLY (UPD7225G)	LCD display driver data output (Command = H, Data = L)	
38	P56/FS9	O	L	L	D	_LSI. RST OUT		Peripheral LSI reset output	RESET=L
39	P57/FS8	O	L	H	D	LOCAL/_DX OUT		Local/DX switching output	DX=L
40	P17/Vdsp	I			U	NOT USED			
41	P60/FD0/FS7	I/O				NOT USED			
42	P61/FD1/FS6	I/O				NOT USED			
43	P62/FD2/FS5	I/O				NOT USED			
44	P63/FD3/FS4	O	L	H	D	KS0		Key strobe pin	
45	P64/FD4/FS3	O	L	H	D	KS1		Key strobe pin	
46	P65/FD5/FS2	O	L	H	D	KS2		Key strobe pin	
47	P66/FD6/FS1	O	L	H	D	KS3		Key strobe pin	
48	P67/FD7/FS0	O	L	H	D	KS4		Key strobe pin	
49	P70/FD8	O	L	H	D	KS5		Key strobe pin	
50	P71/FD9	O	L	H	D	KS6		Key strobe pin	
51	P72/FD10	O	L	H	D	KS7		Key strobe pin	
52	P73/FD11	O	L	H	D	KS8		Key strobe pin	
53	P74/FD12	O	L	H	D	KS9		Key strobe pin	
54	P75/FD13	O	L	H	D	KS10		Key strobe pin	
55	P76/FD14	O	L	H	D	KS11		Key strobe pin	
56	P77/FD15	O	L	H	D	KS12		Key strobe pin	
57	V_{CC}	I	–	–	–			Power supply input pin	
58	P80	O	H	L		_TAPE REC OUT	AMP	Function = tape status output	TAPE=L
59	P81	O	H	L		_RELAY OUT	TUNER	Power supply relay control output	RELAY ON=L
60	P82	O	L	L		_T. MUTE OUT	TUNER	Tuner mute output	MUTE ON=L
61	P83	O	L	L		_AUTO/MONO OUT	TUNER	FM Auto/Mon switching output	AUTO=L
62	P84	O	H	L		PWR _ON/OFF OUT	TUNER	Power on/off status output	POWER ON=L
63	P85	I/O				NOT USED			
64	P86	O	L	H	D	PS CLK OUT	LM7000, LC7821	PLL and function data output	
65	P87	O	L	H	D	PS. DATA OUT	LM7000, LC7821	PLL and function data output	
66	P90/PWM	O	H	L		_SERIAL SIG OUT	SYSTEM	Denon bus output pin	
67	P91/SCK1	I	L	H	U	R. CLK IN	TUNER (LM7070NM)	RDS data input pin	
68	P92/SI1	I	L	H	U	R. DATA IN	TUNER (LM7070NM)	RDS data input pin	
69	P93/SO1	I/O				NOT USED			
70	P94/SCK2	I	L	H	U	CLK IN	CD/DECK	CD and deck display data clock pin	
71	P95/SI2/CS	I	L	H	U	DATA IN	CD/DECK	CD and deck display data input pin	
72	P96/SO2	O	H	L		ENABLE OUT	CD/DECK	Display data transmission enable output	CD=L, DECK=H
73	P97/UD	O	L	H		DIMMER OUT		Dimmer on/off output	ON=H
74	PA0	O	L	H		SUB CHK		Sub check	
75	PA1	O	L	H					
76	AV_{CC}	–	–	–	–			Connected to Vcc pin	
77	P00/AN0	I	L	H	D	KR0		Key input pin	
78	P01/AN1	I	L	H	D	KR1		Key input pin	
79	P02/AN2	I	L	H	D	KR2		Key input pin	
80	P03/AN3	I	L	H	D	KR3		Key input pin	

RECEIVER SECTION

- **Description of Key and Selection Switch Inputs**

<table>
<tr><th>No.</th><th>Function Name</th><th>Function</th></tr>
<tr><td>1</td><td>TUNING UP</td><td>※In the tuner mode
Changes the receiving frequency upward one step at a time. When held for 0.5 seconds or longer, the change is continuous. The unit enters the auto tuning mode the moment the key is released. Pressing the key again engages the step operation.
※In the clock mode
Increments the figures while they are flashing.</td></tr>
<tr><td>2</td><td>TUNING DOWN</td><td>※In the tuner mode
Changes the receiving frequency downward one step at a time. When held for 0.5 seconds or longer, the change is continuous. The unit enters the auto tuning mode the moment the key is released. Pressing the key again engages the step operation.
※In the clock mode
Decrements the figures while they are flashing.</td></tr>
<tr><td>3</td><td>PRESET UP</td><td>Increments the preset number from the current value, and receives that preset station. At the time of the RDS PTY search, becomes the key which selects the program type.</td></tr>
<tr><td>4</td><td>PRESET DOWN</td><td>Decrements the preset number from the current value, and receives that preset station. At the time of the RDS PTY search, becomes the key which selects the program type.</td></tr>
<tr><td>5</td><td>BAND</td><td>Operates in a cyclic manner to specify switching to the FM or AM receiving modes.</td></tr>
<tr><td>6</td><td>MONO/AUTO</td><td>At the time of FM reception, specifies the switching of the receiving mode between the mono/auto mode and the forced mono mode.</td></tr>
<tr><td>7</td><td>MEMORY</td><td>Provides a transition to the mode which registers the stations being received to preset memory. The "MEMO" display will flash. Registration is accomplished by pressing the tuning up or down keys and then press the MEMO key.</td></tr>
<tr><td>8</td><td>ENTER/NEXT</td><td>This is used when setting the timer, setting the current time, and when advancing to the next operation.</td></tr>
<tr><td>9</td><td>TIMER</td><td>Provides a transition to the setting mode which operates the timer only once each day at the set time.</td></tr>
<tr><td>10</td><td>STAND BY</td><td>Pressing this key selects whether or not the timer operation is performed.
To engage the timer operation, use this key to light the stand by mark on the LCD.</td></tr>
<tr><td>11</td><td>CLEAR</td><td>This button is used to change the current time setting or the contents of the set timer.</td></tr>
<tr><td>12</td><td>DISPLAY</td><td>This button switches the display to the reception frequency and time and TAPE COUNTER display.
Pressing this button for 3 seconds or longer changes the function to the time setting mode.</td></tr>
<tr><td>13</td><td>RDS</td><td>Use this button to automatically tune to stations using the radio data system. One press engages the RDS search, two presses engage the PTY search, and three presses engage the TP search mode.</td></tr>
<tr><td>14</td><td>LOCAL/DX (RF ATT.)</td><td>Use this to select the FM sensitivity, local or DX.</td></tr>
<tr><td>15</td><td>USA.
EUROPE.
FREQ.</td><td>Destination selection and setting switch
<table>
<tr><th>3W
Destination</th><th>USA</th><th>Europe</th><th>Freq.</th></tr>
<tr><td>USA</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Europe</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>Southeast Asia</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Japan</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Middle East</td><td>0</td><td>0</td><td>1</td></tr>
</table>
NOTE: "1" : Shorted with a diode
"0" : Open</td></tr>
</table>

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

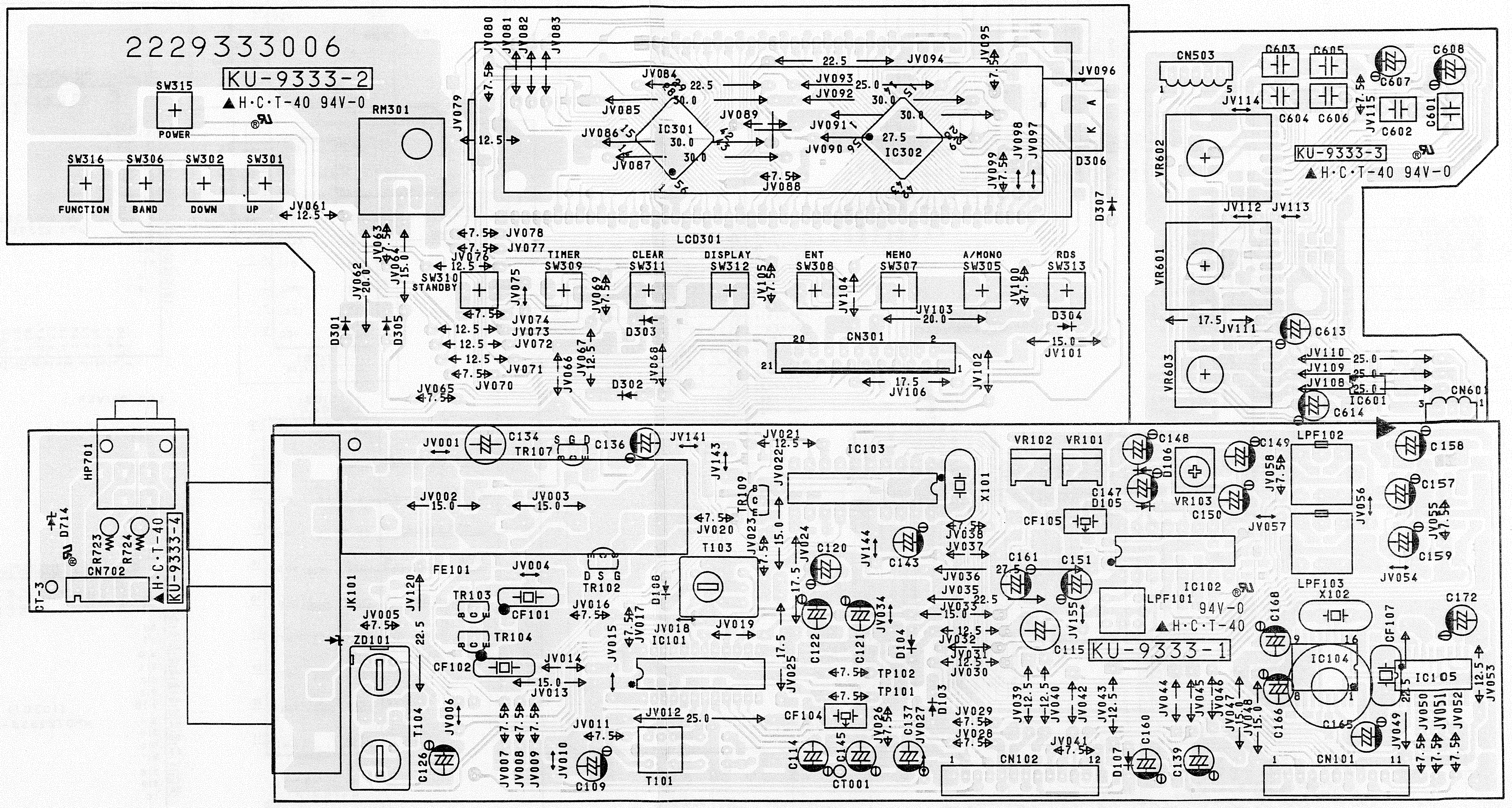

1
2
3
4
5
6
7
8
A
B
C
D
E
RDS DATA LINE
KEY STROBE
TO CD/DECK DISPLAY DATA LINE
PSCLK OUT
PS DATA OUT
SERIAL SIG OUT
DATA START IN
R. CLK IN
R. DATA IN
CLK IN
DATA IN
ENA OUT
KR0
KR1
KR2
KR3
PWR ON/OFF OUT
AUTO/MONO OUT
T. MUTE OUT
RELAY OUT
TAPE REC OUT
KS12
KS11
KS10
KS9
KS8
KS7
KS6
KS5
KS4
KS3
KS2
KS1
KS0
(IC404)
HD6433726A17F
LOCAL/DX OUT
LSI RSI OUT
L. CD OUT
L. BSY IN
L. CS2 OUT
L. CEI OUT
L. DATA OUT
L. CLK OUT
PS CLK OUT
PS DATA OUT
P. STREQ OUT
P. CE OUT
S. CE OUT
TUNED IN
SIGNAL IN
STEREO IN
STOP IN
RESET IN
SERIAL SIG IN
SO/SDIN IN
REMOCON IN
DATA START IN
OFF END IN
PROTECT IN
S-FUNC MUTE OUT
PROTECT OUT
VOL DOWN OUT
VOL UP OUT
SDB OUT
SYSTEM CLOCK
4MHz
SUB CLOCK
32.768kHz
(IC104)
SSA6579T
RDS
RESET
CLOCK
DATA
DT START
(IC105)
LC7070NM
(IC103)
LM7000
STOP REQ
P. CE
CLOCK
DATA
STOP
PLL
(IC502)
LC7821N
S. CE
DATA
CLOCK
FUNCTION
(IC302)
μPD7225GB-3B7
LCD DRIVER
(IC301)
μPD7225GB-3B7
LCD DRIVER
PRESET SCAN
FREQ UP
FM MODE
TIMER
RDS
FUNC
AUX
USA
PHONO
AM MW
FREQ DOWN
BAND
STAND BY
AM ST
EUP
CD TRY
FM
MEMO
CLEAR
CT
XTAL
FREQ
SDB
SLEEP
DIMMR
ENT NEXT
DISPLAY
POWER
NONE
NONE
OEM
ADJUST
NONE
SW 301
SW 305
SW 309
SW 313
SW 316
SW 302
SW 306
SW 310
SW 307
SW 311
SW 308
SW 312
SW 315
1
2
3
4
5
6
7
8
9
10
+10

PRINTED WIRING BOARD

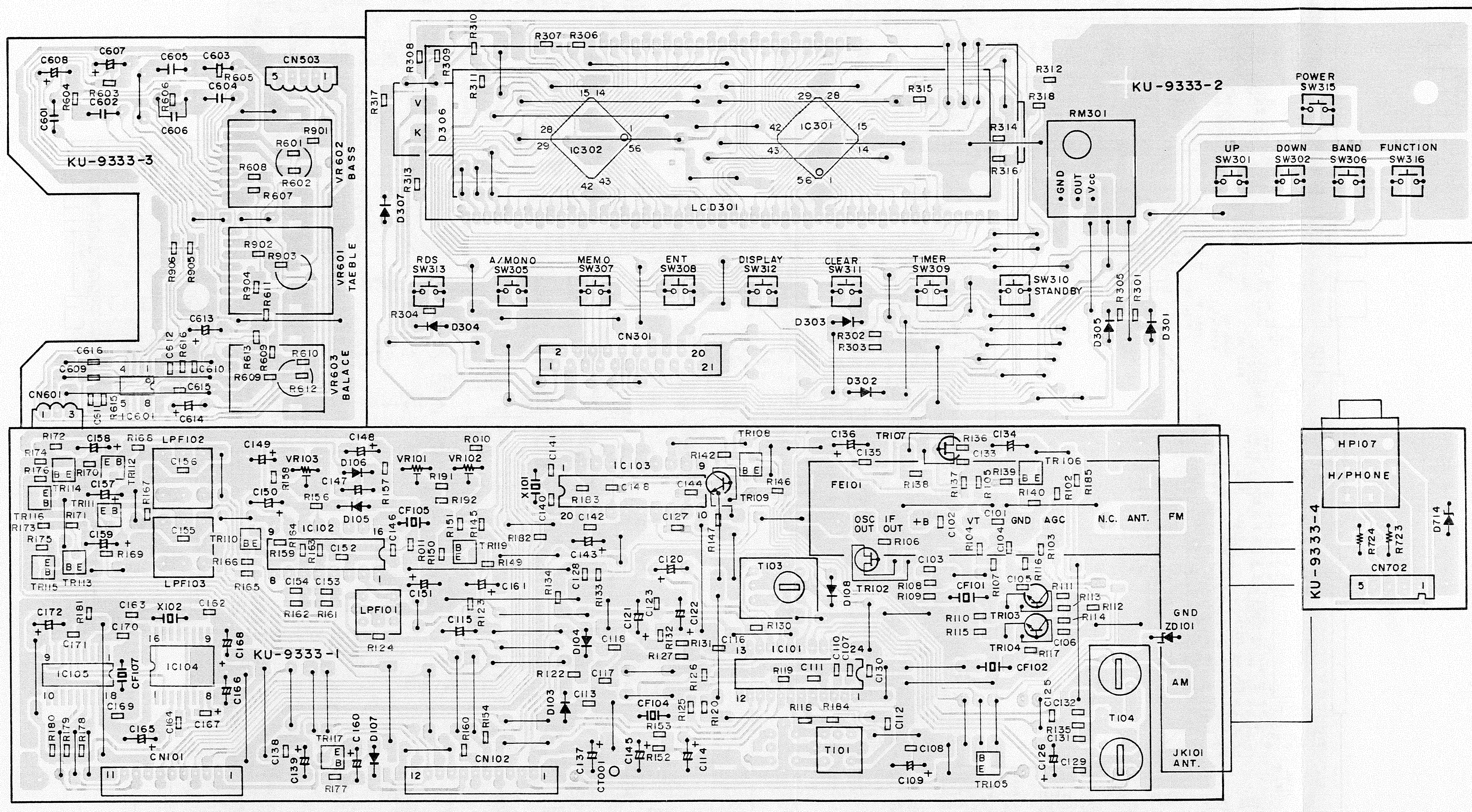
KU-9333 TUNER UNIT ASS'Y

Component Side

KU-9333 TUNER UNIT ASS'Y	
1	TUNER UNIT
2	DISPLAY UNIT
3	TONE UNIT
4	HEADPHONE UNIT


2229333006
KU-9333-2
▲H·C·T-40 94V-0
SW315
POWER
RM301
SW316
FUNCTION
SW306
BAND
SW302
DOWN
SW301
UP
IC301
IC302
LCD301
D306
D307
SW310
STANDBY
TIMER
SW309
CLEAR
SW311
DISPLAY
SW312
ENT
SW308
MEMO
SW307
A/MONO
SW305
RDS
SW313
CN301
D301
D302
D303
D304
D305
CN503
C603
C605
C608
C607
C604
C606
C602
C601
KU-9333-3
▲H·C·T-40 94V-0
VR602
VR601
VR603
C613
IC601
C614
CN601
HP701
D714
R723
R724
CN702
CT-3
▲H·C·T-40
KU-9333-4
JK101
ZD101
FE101
TR103
CF101
TR104
CF102
T104
C126
C134
TR107
C136
TR102
D106
IC101
T101
C109
T103
TR109
C120
C122
C121
D104
IC103
X101
C143
TP102
TP101
CF104
C114
C145
CT001
C137
D103
CN102
VR102
VR101
C148
C149
D106
VR103
C147
D105
C150
CF105
C161
C151
C115
IC102
LPF101
94V-0
▲H·C·T-40
KU-9333-1
C160
D107
C139
C168
C166
C165
IC104
CF107
IC105
LPF102
LPF103
X102
C158
C157
C159
C172
CN101
22.5
25.0
30.0
27.5
20.0
17.5
15.0
12.5
7.5

Pattern Side

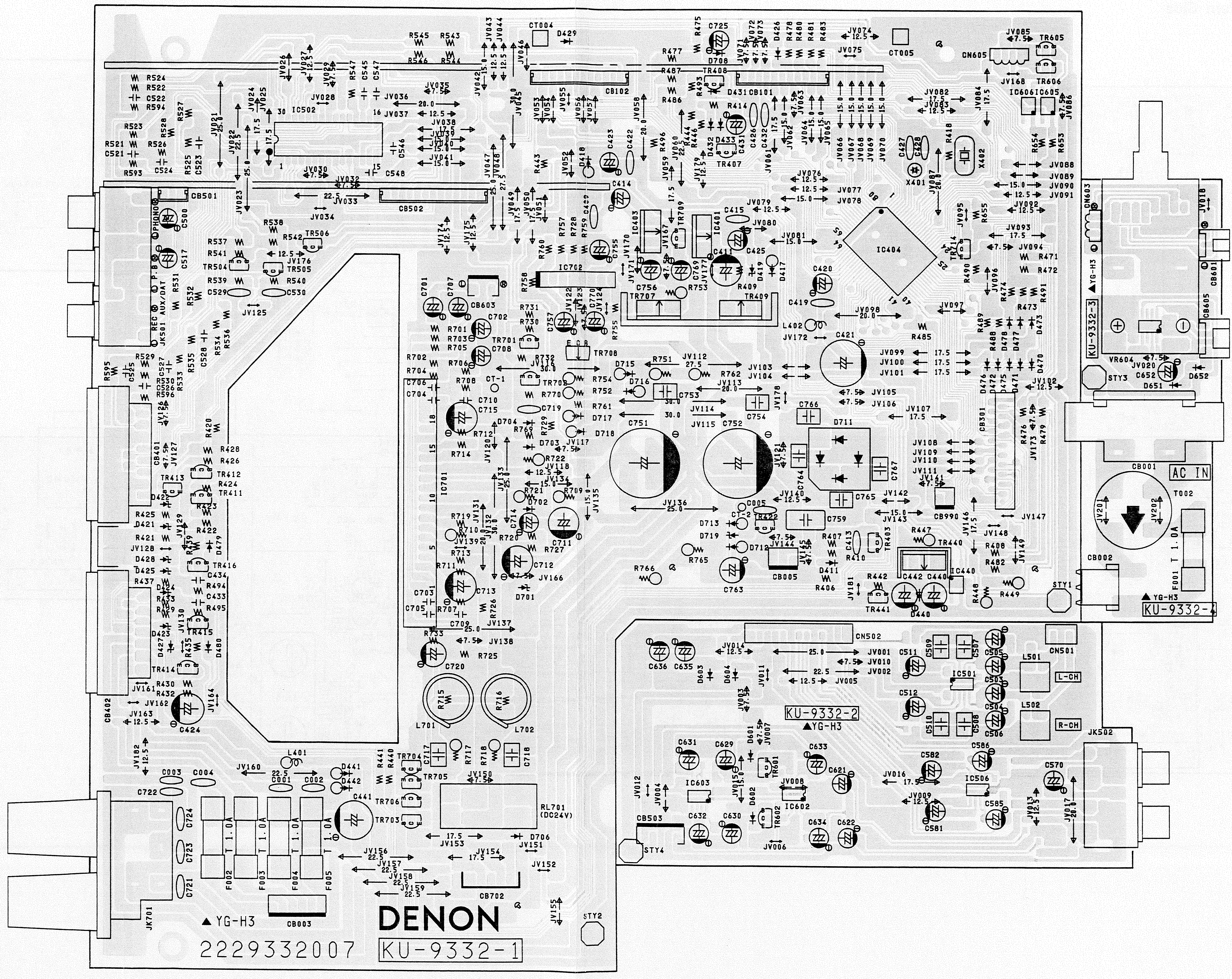

1
2
3
4
5
6
7
8
A
B
C
D
E
KU-9333-3
KU-9333-2
KU-9333-1
KU-9333-4
CN503
CN601
CN301
CN101
CN102
CN702
VR602 BASS
VR601 TAEBLE
VR603 BALACE
IC601
IC302
IC301
LCD301
RM301
GND
OUT
Vcc
POWER SW315
UP SW301
DOWN SW302
BAND SW306
FUNCTION SW316
RDS SW313
A/MONO SW305
MEMO SW307
ENT SW308
DISPLAY SW312
CLEAR SW311
TIMER SW309
SW310 STANDBY
D301
D302
D303
D304
D305
D306
D307
IC101
IC102
IC103
IC104
IC105
LPF101
LPF102
LPF103
FE101
OSC OUT
IF OUT
+B
VT
GND
AGC
N.C.
ANT.
FM
AM
T101
T103
T104
JK101 ANT.
ZD101
X101
X102
VR101
VR102
VR103
CF101
CF102
CF104
CF105
CF107
CT001
HP107
H/PHONE
R723
R724
D714

RECEIVER SECTION

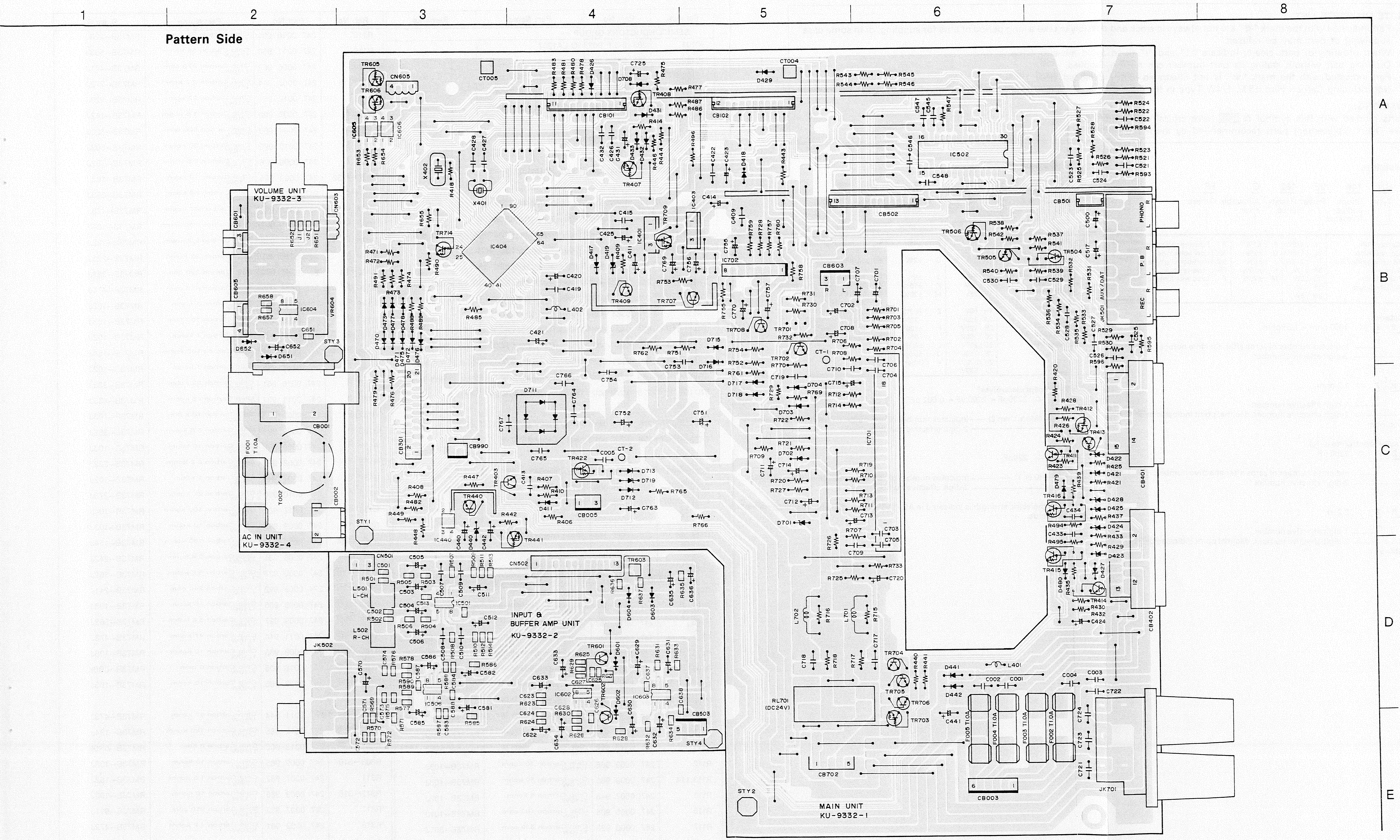
KU-9332 MAIN UNIT ASS'Y

Component Side

KU-9332 MAIN UNIT ASS'Y	
1	MAIN UNIT
2	INPUT & BUFFER UNIT
3	VOLUME UNIT
4	AC IN UNIT


1
2
3
4
5
6
7
8
A
B
C
D
E
DENON
2229332007
KU-9332-1
KU-9332-2
KU-9332-3
KU-9332-4
YG-H3
AC IN
L-CH
R-CH
RL701 (DC24V)
IC404
IC701
IC702
IC502
T002
JK501
JK502
JK701
CB001
CB002
CB003
CB401
CB402
CB501
CB502
CN501
CN502
CN605
F001 T 1.0A
F002
F003
F004
F005
PHONO
AUX/DAT
REC P.B

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
VOLUME UNIT
KU-9332-3
AC IN UNIT
KU-9332-4
INPUT &
BUFFER AMP UNIT
KU-9332-2
MAIN UNIT
KU-9332-1
IC404
IC502
IC701
RL701
(DC24V)
JK501
JK502
JK701
PHONO
P.B
AUX/DAT
REC
CB101
CB102
CB301
CB401
CB402
CB501
CB502
CB503
CB603
CB702
CB003
CB005
CB990
CN502
CN605
F001
T1.0A
F002
T10A
F003
T10A
F004
T10A
F005
T10A
STY1
STY2
STY3
STY4

RECEIVER SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "●" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

- **Resistors**

Ex.: RN 14K 2E 182 G FR

RN: Type
14K: Shape and performance
2E: Power
182: Resistance
G: Allowable error
FR: Others

Type	Power	Allowable error	Others
RD : Carbon Film RC : Composition RS : Metallic oxide Film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

※ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2: Indicates number of zeros after effective number
1 8: 2-digit effective number

- Units: ohm

1 R 2 ⇨ 1.2 ohm
2: 1-digit effective number.
1 R: 2-digit effective number, decimal point indicated by R.

- Units: ohm

※ Capacity (electrolyte only)

2 2 R ⇨ 2200 µF
R: Indicates number of zeros after effective number.
2 2: 2-digit effective number.

- Units: µF

2 R 2 ⇨ 2.2 µF
2: 1-digit effective number.
2 R: 2-digit effective number, decimal point indicated by R.

- Units: µF

- **Capacitors**

Ex.: CE 04W 1H 2R2 M BP

CE: Type
04W: Shape and performance
1H: Dielectric strength
2R2: Capacity
M: Allowable error
BP: Others

Type	Dielectric strength	Allowable error	Others
CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte CQ : Film CK : Ceramic	1C : 16V 1E : 25V 1V : 35V	J : ±5% K : ±10% M : ±20%	HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency
CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

※ Capacity (except electrolyte)

2 R 2 ⇨ 2200pF = 2200 µF = 0.002 µF
2: (More than 2) —— Indicates number of zeros after effective number.
2 R: 2-digit effective number.

- Units: µF

2 2 1 ⇨ 220pF
1: (0 or 1) —— Indicates number of zeros after effective number.
2 2: 2-digit effective number.

- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

KU-9333 PARTS LIST OF UDRA-77

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	263 0421 002	IC LA1267	
IC102	263 0284 004	IC LA3410	
IC103	262 0703 002	IC LM7000	
IC104	262 1701 906	IC SAA6579T-T	
IC105	263 0614 903	IC LC7070NM-TE-R	
IC301,302	263 0912 003	IC UPD7225GB-3B7	
IC601	263 0615 902	IC BA15218F	
TR102	275 0051 909	FET 2SK161(GR)	
TR103,104	273 0025 926	Transistor 2SC461P(C)	
TR105	269 0083 901	Transistor DTA114EK	Built in Resistor
TR106	273 0426 907	Transistor 2SC2412KLN	
TR107	275 0053 907	FET 2SK365(BL/GR)	
TR108	269 0083 901	Transistor DTA114EK	Built in Resistor
TR109	273 0025 926	Transistor 2SC461P(C)	
TR110	273 0384 900	Transistor 2SC2412K(S)	
TR111,112	273 0426 907	Transistor 2SC2412KLN	
TR113,114	269 0066 902	Transistor DTC323TK	Built in Resistor
TR115,116	269 0091 906	Transistor DTC143TK	Built in Resistor
TR117	269 0083 901	Transistor DTA114EK	Built in Resistor
TR119	273 0384 900	Transistor 2SC2412K(S)	
D101	276 0643 941	Zener Diode MTZJ3.6A	
D103～108	276 0616 907	Diode 1SS252	
D301～305	276 0616 907	Diode 1SS252	
D306	393 9470 009	LED Ass'y	
D307	276 0616 907	Diode 1SS252	
D714	276 0636 903	Zener Diode MTZJ8.2B	
LC301	393 6006 007	LCD(CG1206) Ass'y	
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
R011	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R102	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R103	247 0010 987	Chip Carbon 27 kohm 1/10W	RM73B--273J
R104	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
R105	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R106	247 0006 917	Chip Carbon 300 ohm 1/10W	RM73B--301J
R107	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R108	247 0005 976	Chip Carbon 200 ohm 1/10W	RM73B--201J
R109	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R110	247 0006 920	Chip Carbon 330 ohm 1/10W	RM73B--331J
R111	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R112	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R113,114	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R115	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R116	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R117	247 0006 920	Chip Carbon 330 ohm 1/10W	RM73B--331J
R118	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R119	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R120	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R122	247 0008 944	Chip Carbon 2.7 kohm 1/10W	RM73B--272J
R123	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R124	247 0007 990	Chip Carbon 1.6 kohm 1/10W	RM73B--162J
R125	247 0004 980	Chip Carbon 820 ohm 1/10W	RM73B--820J
R126	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R127	247 0009 956	Chip Carbon 7.5 kohm 1/10W	RM73B--752J
R130～132	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R133	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R134	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R135	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R136	247 0008 928	Chip Carbon 2.2 kohm 1/10W	RM73B--222J
R137	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R138,139	247 0005 989	Chip Carbon 220 ohm 1/10W	RM73B--221J
R140	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R142	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R145	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R146,147	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R148	247 0012 969	Chip Carbon 150 kohm 1/10W	RM73B--154J
R149	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R150	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R152	247 0011 931	Chip Carbon 43 kohm 1/10W	RM73B--433J
R151	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R153	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R154	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R156	247 0008 928	Chip Carbon 2.2 kohm 1/10W	RM73B--222J
R157	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R158	247 0010 990	Chip Carbon 27 kohm 1/10W	RM73B--273J
R159	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R160	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R161～164	247 0012 969	Chip Carbon 150 kohm 1/10W	RM73B--154J
R165,166	247 0008 931	Chip Carbon 2.4 kohm 1/10W	RM73B--242J
R167～170	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R171～174	274 0005 992	Chip Carbon 240 ohm 1/10W	RM73B--241J
R175,176	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R177	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R178～180	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R181～183	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R184	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R185	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R301～305	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R306	247 0012 985	Chip Carbon 180 kohm 1/10W	RM73B--184J
R307	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R308～310	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R311	247 0007 987	Chip Carbon 1.5 kohm 1/10W	RM73B--152J
R312～316	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R317	247 0007 932	Chip Carbon 910 ohm 1/10W	RM73B--911J
R318	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J

RECEIVER SECTION

Ref. No.	Part No.	Part Name	Remarks
R601,602	247 0009 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R603,604	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R605,606	247 0005 989	Chip Carbon 220 ohm 1/10W	RM73B--221J
R607,608	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R609,610	247 0011 928	Chip Carbon 39 kohm 1/10W	RM73B--393J
R611,612	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R613,614	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R615,616	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
⚠R723,724	**244 2055 941**	**Metal Oxide 330 ohm**	**RS14B3A331JNBS**
R901～906	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
VR102	211 6095 952	Semi Fixed Resistor 100 kohm	V06QB104
VR103	211 6093 970	Semi Fixed Resistor 100 kohm	V06PB104
VR601,602	211 9103 003	Variable Resistor 50 kohm	V1420P15FB503K
VR603	211 9105 001	Variable Resistor 50 kohm	V11P15FW503-
CAPACITORS GROUP			
C101～106	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C107,108	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C109	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C110	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C111	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C112	257 0002 921	Chip Ceramic 10 pF/50V	CC73SL1H100D
C113	257 0003 946	Chip Ceramic 33 pF/50V	CC73SL1H330J
C114	254 4260 964	Electrolytic 3.3 μ F/50V	CE04W1H3R3M(SME)
C115	254 3056 933	Electrolytic 3.3 μ F/50V (Bipole)	CE04D1H3R3MBP (SME)
C116	257 0007 900	Chip Ceramic 1000 pF/50V	CC73SL1H102J
C117	257 0009 982	Chip Ceramic 6800 pF/50V	CK73B1H682K
C118	257 1013 977	Chip Ceramic 0.068 μ F/25V	CK73B1E683K
C120	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C121	254 4260 964	Electrolytic 3.3 μ F/50V	CE04W1H3R3M(SME)
C122	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C123	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C125	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C126	254 4254 938	Electrolytic 47 μ F/16V	CE04W1C470M(SME)
C127	257 0007 900	Chip Ceramic 1000 pF/50V	CC73SL1H102J
C128	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C129	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C130	257 0003 933	Chip Ceramic 30 pF/50V	CC73SL1H300J
C131	257 0002 992	Chip Ceramic 20 pF/50V	CC73SL1H200J
C132	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C133	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C134	254 3056 917	Electrolytic 1 μ F/50V (Bipole)	CE04D1H010MBP (SME)
C135	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C136	254 4254 938	Electrolytic 47 μ F/16V	CE04W1C470M(SME)
C137	254 4254 941	Electrolytic 100 μ F/16V	CE04W1C101M(SME)
C138	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C139	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)
C140,141	257 0016 933	Chip Ceramic 15 pF/50V	CC73CH1H150J
C142	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C143	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C144	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C145	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C146	257 1013 951	Chip Ceramic 0.047 μ F/25V	CK73B1E473K
C147	254 4260 935	Electrolytic 0.47 μ F/50V	CE04W1HR47M(SME)
C148	254 4260 964	Electrolytic 3.3 μ F/50V	CE04W1H3R3M(SME)
C149	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C150	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M(SME)
C151	254 4254 938	Electrolytic 47 μ F/16V	CE04W1C470M(SME)
C152～154	257 0005 986	Chip Ceramic 330 pF/50V	CC73SL1H331J
C155,156	257 0009 924	Chip Ceramic 2200 pF/50V	CK73B1H222K
C157	254 4254 938	Electrolytic 47 μ F/16V	CE04W1C470M(SME)
C158,159	254 4260 951	Electrolytic 2.2 μ F/50V	CE04W1H2R2M(SME)
C160	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C161	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)
C162,163	257 0016 962	Chip Ceramic 27 μ F/50V	CC73CH1H270J
C164	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C165	254 4260 951	Electrolytic 2.2 μ F/50V	CE04W1H2R2M(SME)
C166	254 4252 927	Electrolytic 47 μ F/10V	CE04W1A470M(SME)
C167	257 0006 943	Chip Ceramic 560 pF/50V	CC73SL1H561J
C168	254 4252 927	Electrolytic 47 μ F/10V	CE04W1A470M(SME)
C169,170	257 0003 933	Chip Ceramic 30 pF/50V	CC73SL1H300J
C171	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C172	254 4252 927	Electrolytic 47 μ F/10V	CE04W1A470M(SME)
C601,602	255 1264 937	Plastic Film 1800 pF/50V	CQ93M1H182J(B)
C603～606	255 1265 978	Plastic Film 0.022 μ F/50V	CQ93M1H223J(B)
C607,608	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M(SME)
C609～612	257 0005 944	Chip Ceramic 220 pF/50V	CC73SL1H221J
C613,614	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C615,616	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z

OTHER GROUP				Q'ty
	—	(P.W.Board)		(1)
X101	399 0075 003	Crystal(7.2 MHz)		1
X102	399 0178 007	Crystal(4.332 MHz)		1
CF101	261 0141 001	FM Ceramic Filter	SK107M2-A0-20	1
CF102	261 0142 000	FM Ceramic Filter	SK107M3-A0-20	1
CF104	261 0101 009	AM Ceramic Filter	BFU450C4N	1
CF105	261 0103 007	Ceramic Resonator	CSB456F11	1
CF107	399 0041 901	Ceramic Resonator	CSA4.00MG	1
T101	231 2909 004	FM IF Det.		1
T103	231 3904 008	AM IFT		1
T104	231 1913 004	MW Ant-Osc. Coil		1
LP101	232 9010 009	Antibirdie Filter		1
LP102,103	232 9011 008	Low Pass Filter		1
FE101	216 9013 004	FM Front End(U)		1

RECEIVER SECTION

Ref. No.	Part No.	Part Name	Remarks	Q'ty
JK101	205 0847 004	3 P Ant. Terminal(PAL/F)		1
RM301	499 0150 008	Remocon Sensor	SBX1610-52	1
	212 5604 907	Tact Switch		13
HP701	204 8370 020	Head Phone Jack(D3.6)		1
CN101	205 0805 059	11 P Conn. Socket(9176)		1
CN102	205 0987 003	12 P Conn. Socket(9176)		1
CN503	203 8211 092	5 P KR-DA Conn. Cord		1
CN601	203 4632 028	3 P KR-DA Conn. Cord		1
CN702	203 8346 022	5 P EH-SCN Conn. Cord		1
CT001,003	009 9037 013	1 P Wire Ass'y		2

KU-9332 PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC401	263 1010 001	IC BA178M06	
IC403	263 1004 004	IC BA178M12	
IC404	262 1887 008	IC HD6433726A17F	
IC440	262 0150 914	IC TLP181(BL/GR)	
IC501	263 1032 908	IC NJM2082MD	
IC502	262 1227 008	IC LC7821	
IC506	263 0615 902	IC BA15218F	
IC602,603	263 0615 902	IC BA15218F	
IC604	263 0905 900	IC BA6208F	
IC605,606	262 0150 914	IC TLP181(BL/GR)	
IC701	265 0073 003	IC STK4152MK2	
IC702	263 0646 007	IC M5230L	
TR403	273 0388 906	Transistor 2SC1740S(E)	
TR440	274 0120 002	Transistor 2SD1762(E/F)	
TR407,408	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR409	274 0120 002	Transistor 2SD1762(E/F)	
TR411	269 0075 906	Transistor DTC124TS(22K)	Built in Resistor
TR412	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR413,414	269 0075 906	Transistor DTC124TS(22K)	Built in Resistor
TR415,416	269 0145 904	Transistor DTC124GS(TP)	Built in Resistor
TR422	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR441	269 0046 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR504,505	269 0099 908	Transistor DTC143TS(4.7K)	Built in Resistor
TR506	269 0093 904	Transistor DTA144ES (47K-47K)	Built in Resistor
TR601,602	275 0058 902	FET 2SJ40(C)/(D)	
TR605,606	269 0046 906	Transistor DTA114ES (10K-10K)	Built in Resistor
TR702	273 0432 904	Transistor 2SC2389STP(S/E)	
TR703	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR704,705	273 0388 906	Transistor 2SC1740S(E)	
TR706	271 0192 905	Transistor 2SA933S(S)	
TR707	274 0120 002	Transistor 2SD1762(E/F)	
TR708	272 0107 919	Transistor 2SB1328(P/Q)	
TR709	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
TR714	269 0020 906	Transistor DTC114ES (10K-10K)	Built in Resistor
D411	276 0616 907	Diode 1SS252	
D417,418	276 0553 905	Diode 1SR35-200A	
D419	276 0645 923	Zener Diode MTZJ22A	
D421～428	276 0636 903	Zener Diode MTZJ8.2B	
D429	276 0616 907	Diode 1SS252	
D431	276 0616 907	Diode 1SS252	
D432	276 0634 905	Zener Diode MTZJ3.3A	
D440	276 0644 908	Zener Diode MTZJ6.8A	
D441,442	276 0553 905	Diode 1SR35-200A	
D472	276 0616 907	Diode 1SS252	
D479,480	276 0616 907	Diode 1SS252	
D601,602	276 0616 907	Diode 1SS252	
D604	276 0616 907	Diode 1SS252	
D651,652	276 0616 907	Diode 1SS252	
D702～704	276 0616 907	Diode 1SS252	
D706	276 0616 907	Diode 1SS252	
D708	276 0616 907	Diode 1SS252	
⚠D711	276 0338 007	Diode S4VB20F	Bridge
D712,713	276 0553 905	Diode 1SR35-200A	
D715～718	276 0553 905	Diode 1SR35-200A	
D719	276 0644 966	Zener Diode MTZJ12A	
⚠R447	244 2050 933	Metal Oxide 180 ohm	RS14B3A181JNBS
⚠R448,449	244 2051 987	Metal Oxide 4.7 ohm	RS14B3A4R7JNBS
R501,502	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R503,504	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R505,506	247 0006 975	Chip Carbon 510 ohm 1/10W	RM73B--511J
R507,508	247 0013 926	Chip Carbon 270 kohm 1/10W	RM73B--274J
R509,510	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R511,512	247 0013 984	Chip Carbon 470 kohm 1/10W	RM73B--474J
R513,514	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R569,570	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R571,572	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R575,576	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R577,578	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R585,586	247 0013 984	Chip Carbon 470 kohm 1/10W	RM73B--474J
R587～590	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R623,624	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R627,628	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R629,630	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R631,632	247 0006 920	Chip Carbon 3.3 kohm 1/10W	RM73B--332J
R633,634	247 0012 901	Chip Carbon 82 kohm 1/10W	RM73B--823J
R635	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R636	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R651,652	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R659	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
⚠R709,710	241 2377 947	Carbon Film 100 ohm 1/4W(NB)	RD14B2E101JNBS
⚠R717,718	244 2051 987	Metal Oxide 4.7 kohm	RS14B3A4R7JNBS
⚠R721,722	244 2043 982	Metal Oxide 0.22 ohm	RS14B3AR22JNBS
⚠R753,754	241 2379 929	Carbon Film 650 ohm 1/4W(NB)	RD14B2E651JNBS
⚠R765	244 2050 933	Metal Oxide 180 ohm	RS14B3A181JNBS
⚠R766	244 2051 958	Metal Oxide 220 ohm	RS14B3A221JNBS
⚠R995	241 2377 947	Carbon Film 100 ohm 1/4W(NB)	RD14B2E101JNBS

RECEIVER SECTION

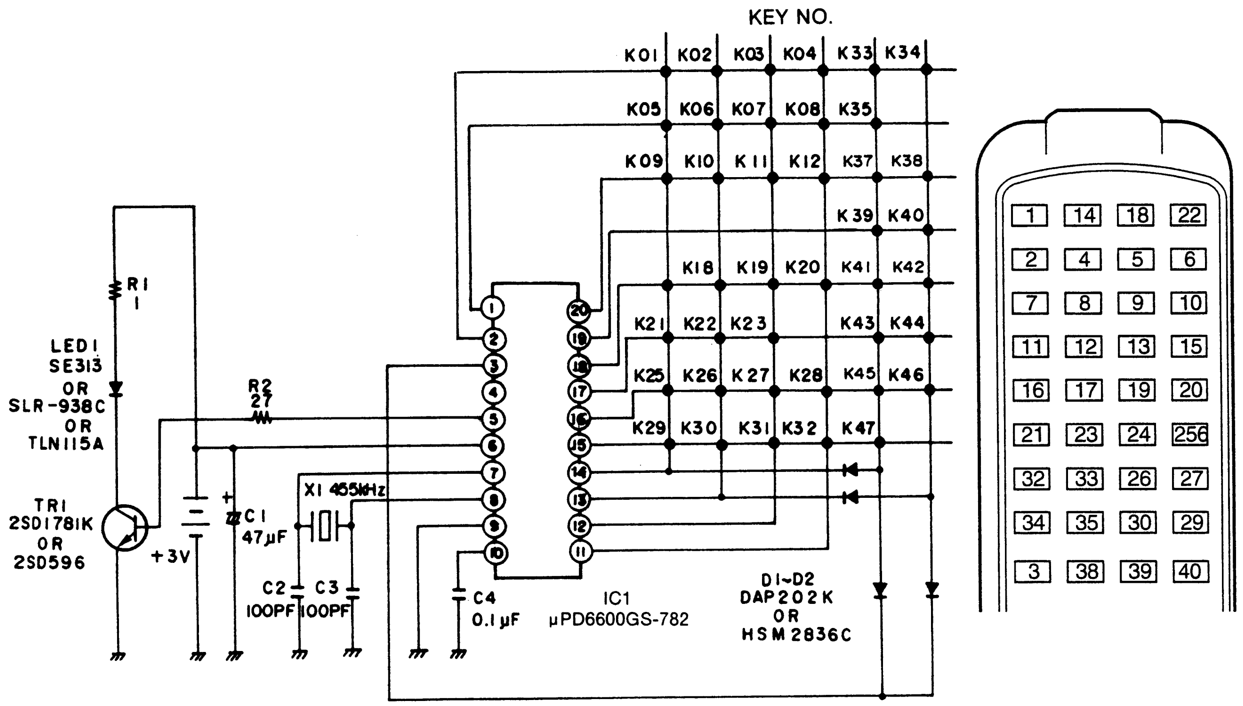
Ref. No.	Part No.	Part Name	Remarks
CAPACITORS GROUP			
C001,002	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C409	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C411	254 4254 941	Electrolytic 100 μ F/16V	CE04W1C101M(SME)
C413	253 9037 908	Chip Ceramic 0.1 μ F/50V	CK45=1H104Z(BC)
C414	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C415	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C419	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C420	254 2452 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)
C421	259 0007 702	Super Capacitor 8200 μ F/5.5V	SB CAP==822=C
C422	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C423	254 2452 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)
C424	254 4252 969	Electrolytic 470 μ F/10V	CE04W1A471M(SME)
C425	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C426	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C431	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C432	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)
C433,434	254 1193 934	Chip Ceramic 100 pF/50V	CK14B1H101K
C440	254 4254 941	Electrolytic 100 μ F/16V	CE04W1C101M(SME)
C441	254 4254 789	Electrolytic 1000 μ F/ 16V	CE04W1C102M(SME)
C442	254 4254 941	Electrolytic 100 μ F/16V	CE04W1C101M(SME)
C501,502	257 0005 944	Chip Ceramic 220 pF/50V	CC73SL1H221J
C503,504	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C505,506	254 4252 927	Electrolytic 47 μ F/10V	CE04W1A470M(SME)
C511,512	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C513,514	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C529,530	253 4444 907	Chip Ceramic 220 pF/50V	CC45SL1H221J
C571～574	257 0005 902	Chip Ceramic 180 pF/50V	CC73SL1H181J
C581,582	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C583,584	257 0005 902	Chip Ceramic 150 pF/50V	CC73SL1H151J
C585,586	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C587,588	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C621,622	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C623～626	257 0005 986	Chip Ceramic 330 pF/50V	CC73SL1H331J
C627,628	257 0005 986	Chip Ceramic 330 pF/50V	CC73SL1H331J
C631,632	254 4260 922	Electrolytic 0.33 μ F/50V	CE04W1HR33M(SME)
C633,634	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)
C637,638	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C651	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C652	253 4444 907	Chip Ceramic 220 pF/50V	CC45SL1H221J
C717,718	256 1034 937	Metarized 0.047 μ F/50V	CF93A1H473J
C720	254 4250 945	Electrolytic 330 μ F/6.3V	CE04W0J331M(SME)
C707,708	254 4252 901	Electrolytic 22 μ F/10V	CE04W1A220M(SME)
C751,752	254 4424 700	Electrolytic 4700 μ F/45V	CE04W==472M
C755	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)
C769,770	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M(SME)

OTHER GROUP				Q'ty
	—	(P.W.Board)		(1)
L401,402	235 0060 950	Inductor(10 μ H)		2

Ref. No.	Part No.	Part Name	Remarks	Q'ty
L501,502	235 9003 002	Inductor		2
L701,702	235 0007 007	Inductor		2
△T002	**239 8019 002**	**Line Filter Coil**		**1**
RL701	214 0167 005	Relay(G5Z-2A)		1
X402	399 0191 903	Ceramic Resonator	CST4.00MGW	1
△F001～005	**206 1075 001**	**Fuse(1A)**		**5**
JK501	205 0754 003	6 P Pin Jack (GND)		1
JK502	204 8519 001	4 P Pin Jack (GND)		1
JK701	205 0551 002	4 P Terminal		1
	417 9050 000	Radiator		1
	473 7500 015	Tapping Screw(P) 3×8		2
	417 0114 000	Radiator		
	473 7500 015	Tapping Screw(P) 3×8		1
CN501	205 0805 017	3 P Conn. Socket		1
CN502	205 0987 029	13 P Conn. Socket(9176)		1
CN602	205 0355 033	3 P KR Conn. Base(L)		1
CN603	203 5133 005	3 P KR-DA Shield Cord		1
CN605	203 6214 017	4 P KR-DA Conn. Cord		1
△CB001	**203 2349 009**	**2 P Inlet**		**1**
△CB002	**205 0453 003**	**2 P VH Conn. Base(L)**		**1**
CB003	205 0190 065	6 P NH Connector Base		1
CB005	205 0190 036	3 P NH Connector Base		1
CB101	205 0806 058	11 P Conn. Base(9115)		1
CB102	205 0988 002	12 P Conn. Base(9115)		1
CB301				
CB401	204 8284 022	15 P System Socket		1
CB402	205 0730 056	13 P System Socket(BU)		1
CB501	205 0806 016	3 P Conn. Base		1
CB502	205 0988 028	13 P Conn. Base(9115)		1
CB503	205 0343 058	5 P Conn. Base		1
CB603	205 0343 032	3 P Conn. Base(KR-PH)		1
CB605	205 0355 046	4 P KR Conn. Base(L)		1
CB702	205 0233 058	5 P EH Connector Base		1
	412 9483 009	Earth Plate		1
	009 9043 007	1 P Wire Ass'y		1
	205 0452 017	Style Pin		3

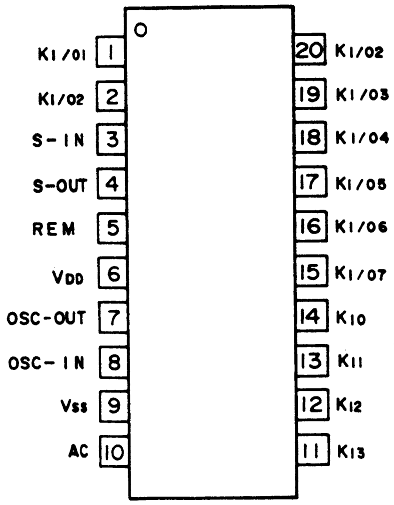
REMOTE CONTROL UNIT (RC-800 : Part No. 499 9010 000)

● SCHEMATIC DIAGRAM


KEY NO.
K01 K02 K03 K04 K33 K34
K05 K06 K07 K08 K35
K09 K10 K11 K12 K37 K38
K39 K40
K18 K19 K20 K41 K42
K21 K22 K23 K43 K44
K25 K26 K27 K28 K45 K46
K29 K30 K31 K32 K47
R1 1
LED1 SE313 OR SLR-938C OR TLN115A
TR1 2SD1781K OR 2SD596
+3V
R2 27
C1 47μF
X1 455kHz
C2 100PF
C3 100PF
C4 0.1μF
IC1 μPD6600GS-782
D1~D2 DAP202K OR HSM2836C
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
1 14 18 22
2 4 5 6
7 8 9 10
11 12 13 15
16 17 19 20
21 23 24 256
32 33 26 27
34 35 30 29
3 38 39 40

● IC

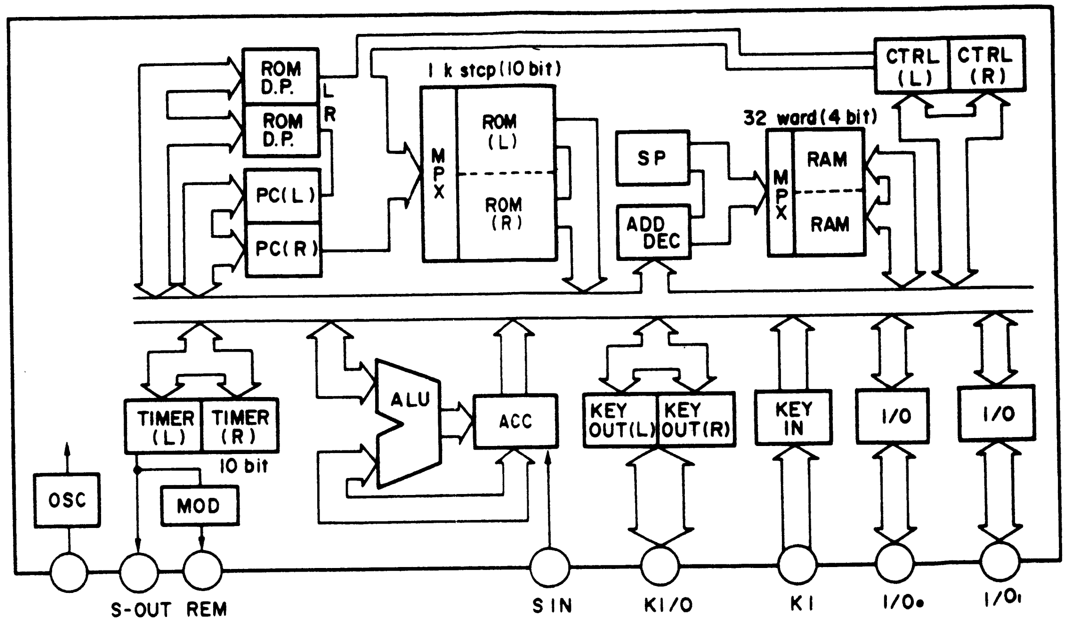
μPD6600GS-782
Pin Connections Diagram (Top View)


KI/O1 1
KI/O2 2
S-IN 3
S-OUT 4
REM 5
VDD 6
OSC-OUT 7
OSC-IN 8
VSS 9
AC 10
20 KI/O2
19 KI/O3
18 KI/O4
17 KI/O5
16 KI/O6
15 KI/O7
14 K10
13 K11
12 K12
11 K13

NOTE:

1. Unspecified resistance values are in ohm, K indicates kohm, and M indicates Mohm.
2. Unspecified capacitance values are in μF, p indicates pF.
3. The voltages of the various section represent the values when there is no signal.
4. This wiring diagram is the basic wiring diagram. Note that it may be changed for the purpose of improvement, etc.

BLOCK DIAGRAM


ROM D.P.
ROM D.P.
L
R
PC(L)
PC(R)
1 k stcp (10 bit)
MPX
ROM (L)
ROM (R)
SP
ADD DEC
32 word (4 bit)
MPX
RAM
RAM
CTRL (L)
CTRL (R)
TIMER (L)
TIMER (R)
10 bit
ALU
ACC
KEY OUT(L)
KEY OUT(R)
KEY IN
I/O
I/O
OSC
MOD
S-OUT
REM
SIN
KI/O
KI
I/O0
I/O1

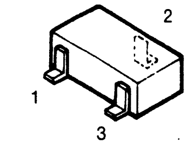
KEY POSITION	KEY NO.	FUNCTION	D1 C1 … C15	D2 C1 … C15
1	K05	POWER	001100000101000	Same as left.
2	K07	SLEEP	001100100111000	Same as left.
3	K06	FUNCTION	001101111101000	Same as left.
4	K46	■	000100111101000	Same as left.
5	K44	▶	000100011101000	Same as left.
6	K45	❚❚	000101011101000	Same as left.
7	K43	◀◀	000101101101000	Same as left.
8	K42	▶▶	000100101101000	Same as left.
9	K41	❙◀◀	000101001101000	Same as left.
10	K40	▶▶❙	000100001101000	Same as left.
11	K25	1	001100100001000	000100100001000
12	K26	2	001101100001000	000101100001000
13	K27	3	001100010001000	000100010001000
14	K39	DIRECT	000101110101000	Same as left.
15	K28	4	001101010001000	000101010001000
16	K29	5	001100110001000	000100110001000
17	K30	6	001101110001000	000101110001000
18	K37	PROGRAM	000101011001000	Same as left.
19	K31	7	001100001001000	000100001001000
20	K32	8	001101001001000	000101001001000

KEY POSITION	KEY NO.	FUNCTION	D1 C1 … C15	D2 C1 … C15
21	K33	9	001101100011000	000100101001000
22	K38	CANCEL	000101000101000	Same as left.
23	K34	10	001100010011000	000101101001000
24	K35	+10	001101111011000	000100011001000
25	K10	BAND	001101110101100	Same as left.
26	K12	TUNING ▼	001100101101100	Same as left.
27	K11	TUNING ▲	001101001101100	Same as left.
28	K09	CT	001101100101100	Same as left.
29	K08	RDS	001100100101100	Same as left.
30	K04	PRESET ▼	001101111001000	Same as left.
31	K03	PRESET ▲	001100111001000	Same as left.
32	K18	◀	001001110011000	Same as left.
33	K21	▶	001000011011000	Same as left.
34	K20	◀◀	001001101011000	Same as left.
35	K19	▶▶	001000101011000	Same as left.
36	K22	■	001000111011000	Same as left.
37	K23	● REC	001001111011000	Same as left.
38	K47	SDB	000100101011100	Same as left.
39	K01	VOLUME ▼	001100011001000	Same as left.
40	K02	VOLUME ▲	001101011001000	Same as left.

※ D1:Tune mode (After sending the BAND (K10) key and the initial condition immediately following battery insertion.)
D2:TCD mode (After sending the DIRECT (K39) key or the PROGRAM (K37) key.)

● Transistors

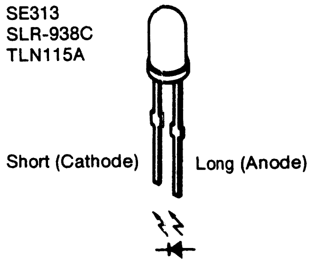
2SD1781K
or
2SD596



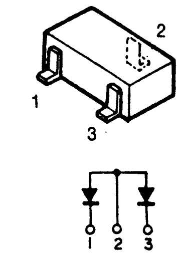
1 B (Base)
2 C (Collector)
3 E (Emitter)

● Diodes

Infrared LED
SE313
SLR-938C
TLN115A

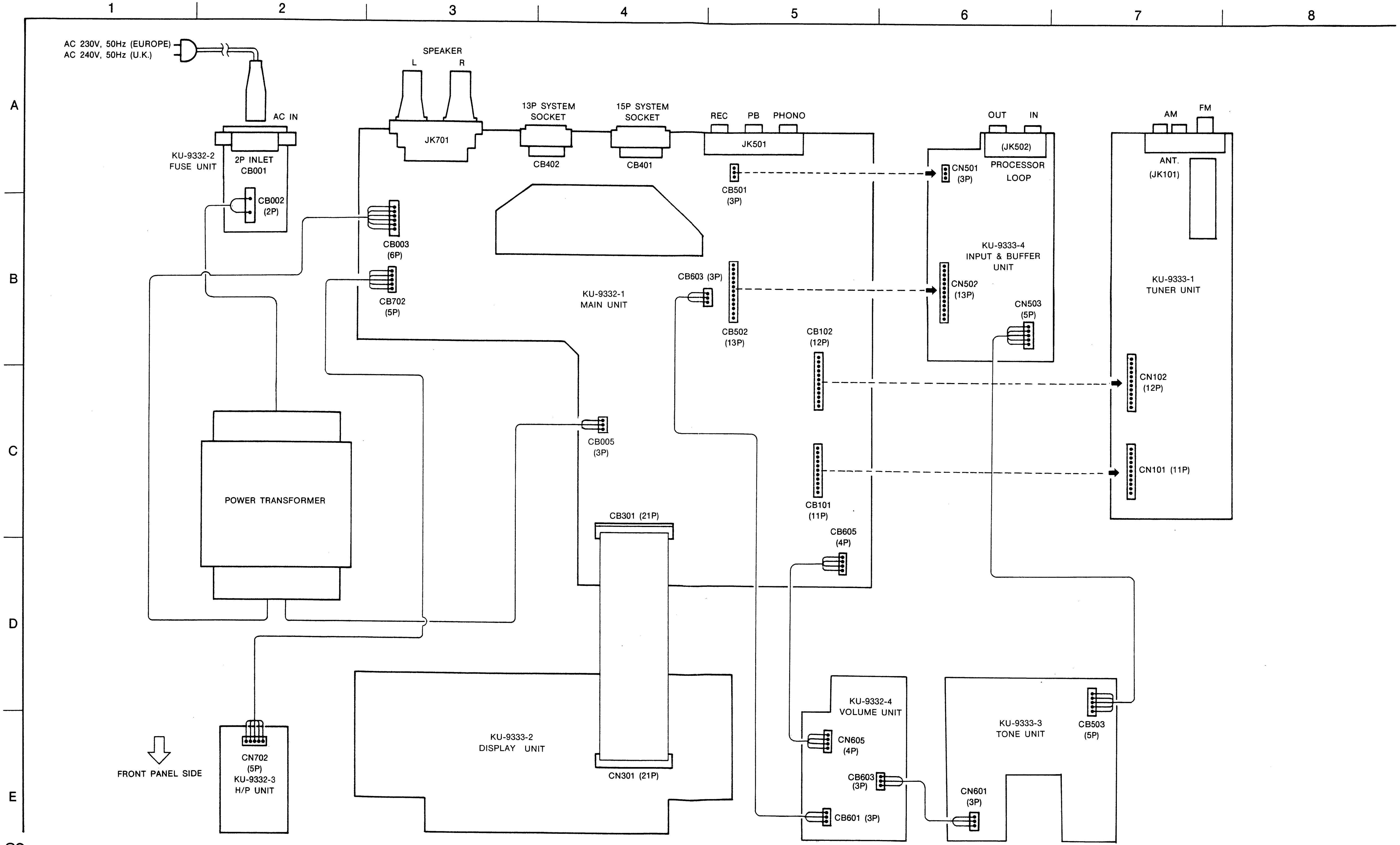

Short (Cathode)
Long (Anode)

DAP202K
or
HSM2836CTR

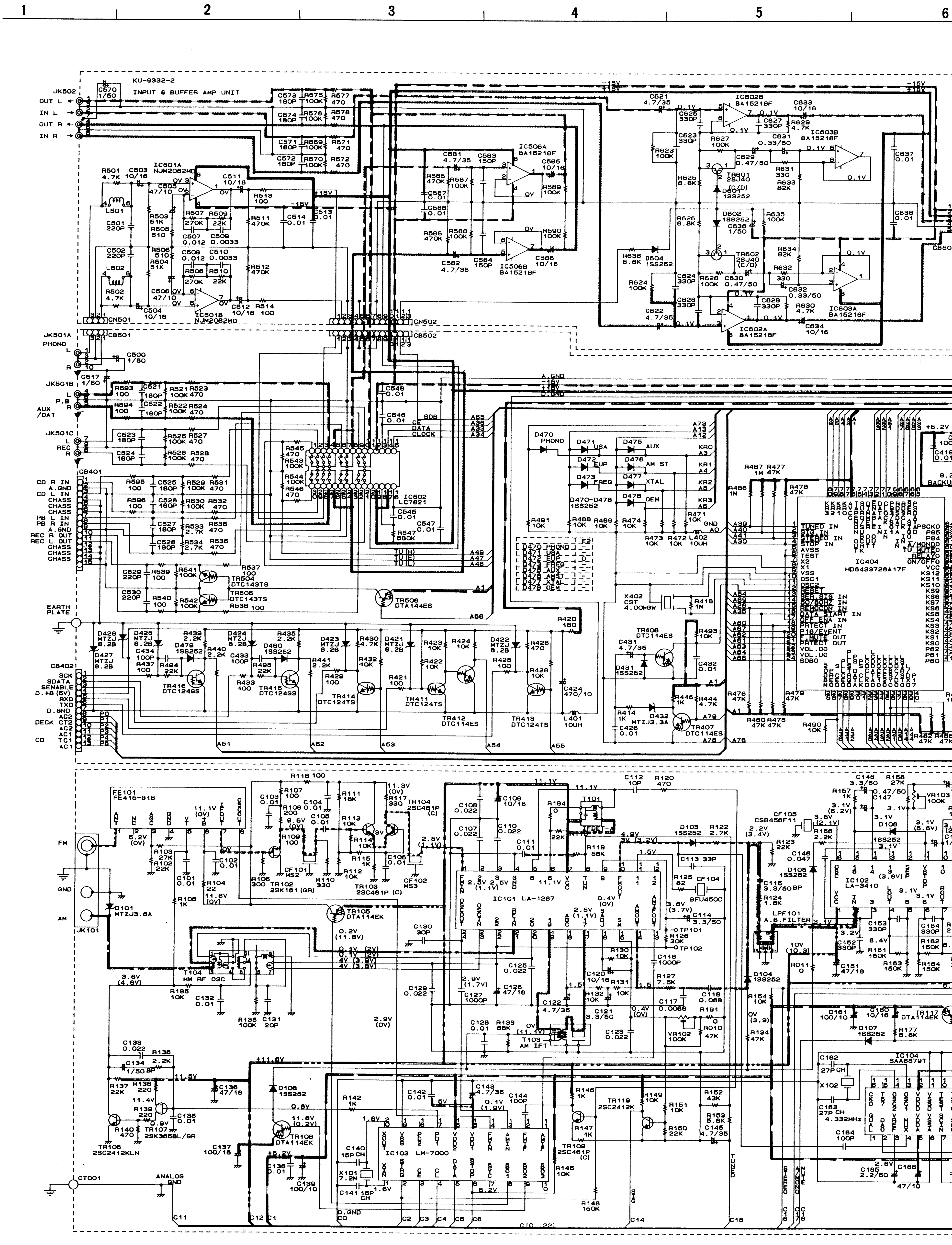


RECEIVER SECTION

WIRING DIAGRAM


1
2
3
4
5
6
7
8
A
B
C
D
E
AC 230V, 50Hz (EUROPE)
AC 240V, 50Hz (U.K.)
AC IN
KU-9332-2
FUSE UNIT
2P INLET
CB001
CB002
(2P)
SPEAKER
L
R
JK701
13P SYSTEM
SOCKET
CB402
15P SYSTEM
SOCKET
CB401
REC
PB
PHONO
JK501
CB501
(3P)
OUT
IN
(JK502)
PROCESSOR
LOOP
CN501
(3P)
AM
FM
ANT.
(JK101)
CB003
(6P)
CB702
(5P)
KU-9332-1
MAIN UNIT
CB603 (3P)
CB502
(13P)
KU-9333-4
INPUT & BUFFER
UNIT
CN502
(13P)
CN503
(5P)
KU-9333-1
TUNER UNIT
CB102
(12P)
CN102
(12P)
CB005
(3P)
CB101
(11P)
CN101 (11P)
POWER TRANSFORMER
CB301 (21P)
CB605
(4P)
KU-9333-2
DISPLAY UNIT
CN301 (21P)
KU-9332-4
VOLUME UNIT
CN605
(4P)
CB603
(3P)
CB601 (3P)
KU-9333-3
TONE UNIT
CB503
(5P)
CN601
(3P)
CN702
(5P)
KU-9332-3
H/P UNIT
FRONT PANEL SIDE

SCHEM

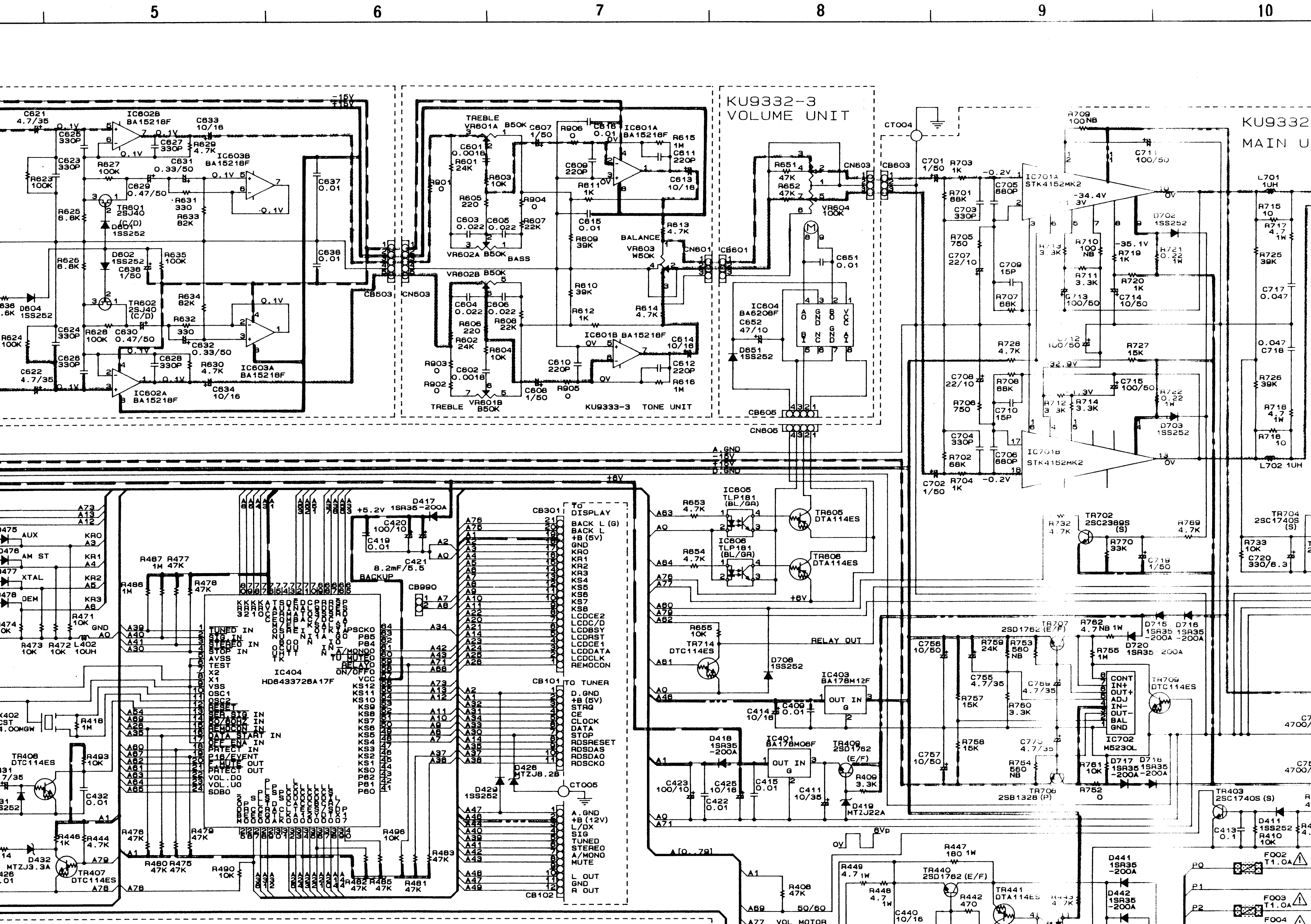

1
2
3
4
5
6
KU-9332-2
INPUT & BUFFER AMP UNIT
JK502
OUT L
IN L
OUT R
IN R
IC501A NJM2082MD
IC501B NJM2082MD
IC506A BA15218F
IC506B BA15218F
IC602B BA15218F
IC603B BA15218F
IC603A BA15218F
IC602A BA15218F
TR601 2SJ40 (C/D)
TR602 2SJ40 (C/D)
CN501
CN502
CB501
CB502
JK501A PHONO
JK501B P.B AUX /DAT
JK501C REC
CB401
CD R IN
A.GND
CD L IN
CHASS
PB L IN
PB R IN
REC R OUT
REC L OUT
IC502 LC7821
TR504 DTC143TS
TR505 DTC143TS
TR506 DTA144ES
EARTH PLATE
CB402
SCK
SDATA
SENABLE
D.+B (5V)
RXD
TXD
D.GND
DECK
CD
TR416 DTC124GS
TR415 DTC124GS
TR414 DTC124TS
TR411 DTC124TS
TR412 DTC114ES
TR413 DTC124TS
D470 PHONO
D471 USA
D472 EUP
D473 FREQ
D475 AUX
D476 AM ST
D477 XTAL
D478 DEM
X402 CST 4.00MGW
TR406 DTC114ES
TR407 DTC114ES
IC404 HD6433726A17F
FE101 FE415-G16
FM
GND
AM
JK101
D101 MTZJ3.6A
T104 MW RF OSC
TR102 2SK161 (GR)
TR103 2SC461P (C)
TR104 2SC461P (C)
TR105 DTA114EK
CF101 MS2
CF102 MS3
IC101 LA-1267
T101 IFDET
T103 AM IFT
CF104 BFU450C
CF105 CSB456F11
IC102 LA-3410
LPF101 A.B.FILTER
IC104 SAA6579T
X102 4.332MHz
TR106 2SC2412KLN
TR107 2SK368L/GR
TR108 DTA114EK
IC103 LM-7000
X101 7.2M
TR119 2SC2412K
TR109 2SC461P (C)
TR117 DTA114EK
CT001
ANALOG GND
+15V LINE
-15V LINE
+6V LINE
-12V LINE
+B LINE
-B LINE
R-ch LINE
L-ch LINE
AM SIGNAL LINE
FM SIGNAL LINE

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CA
Bef
lea
def

WA
DO

SCHEMATIC DIAGRAM


5
6
7
8
9
10
KU9332-3 VOLUME UNIT
KU9333-3 TONE UNIT
KU9332 MAIN U
KU9333-1 TUNER UNIT
KU9333-2 DISPLAY UNIT
IC602B BA15218F
IC603B BA15218F
IC603A BA15218F
IC602A BA15218F
IC601A BA15218F
IC601B BA15218F
IC604 BA6206F
IC701A STK4152MK2
IC701B STK4152MK2
IC404 HD6433728A17F
IC605 TLP181 (BL/GR)
IC606 TLP181 (BL/GR)
IC403 BA178M12F
IC401 BA178M06F
IC702 M5230L
IC102 LA-3410
IC104 SAA6579T
IC105 LC7070NM
IC301 UPD7225GB
IC302 UPD7225GB
LCD301 LCD (CG1206)
TREBLE
BASS
BALANCE
TO DISPLAY
TO TUNER
TO AMP
RELAY OUT
BACK LIGHT
VOL MOTOR
B.LIGHT & VOL M (G)

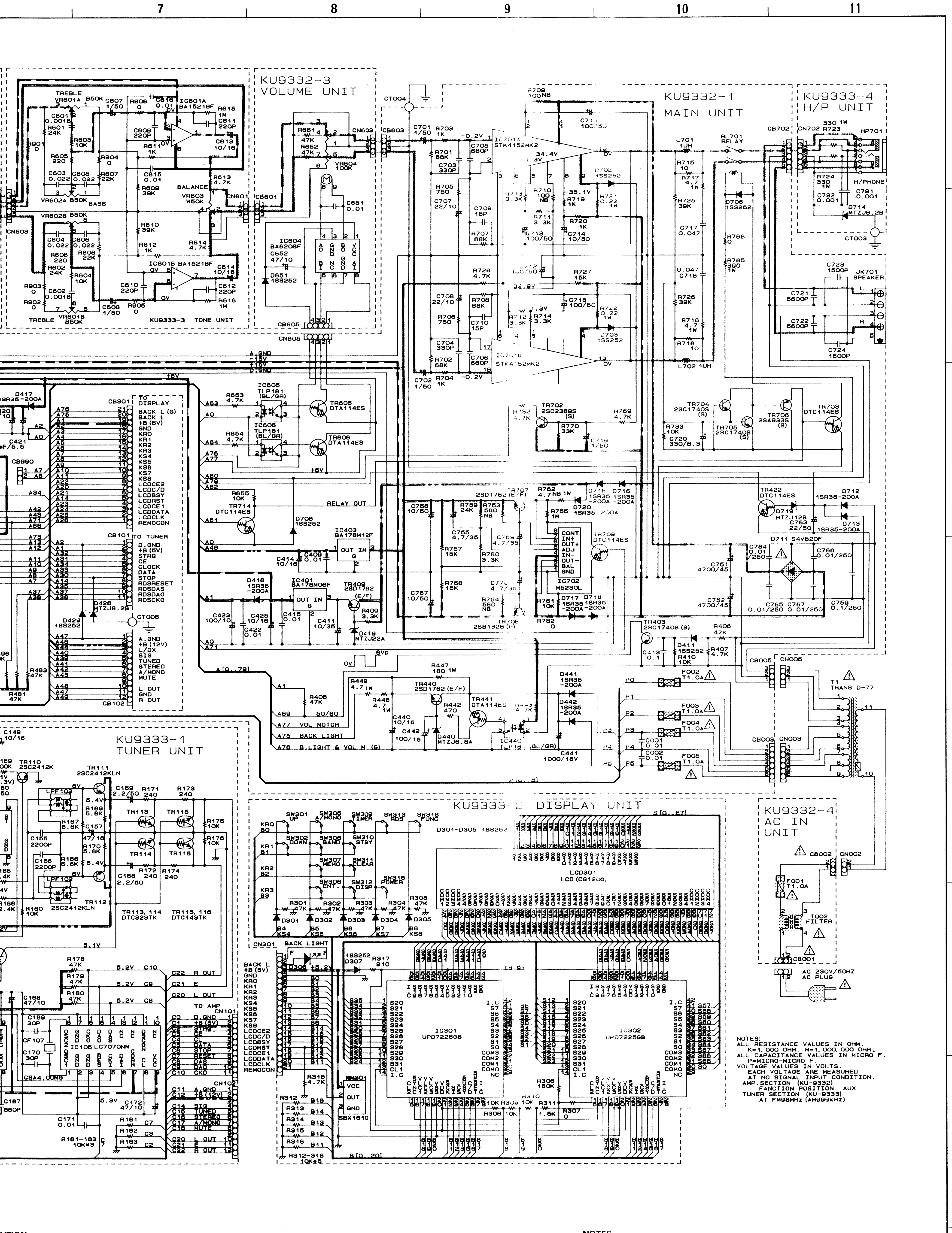
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM
ALL CAPACITANCE VALUES IN M
EACH VOLTAGE AND CURRENT A
CIRCUIT AND PARTS ARE SUBJEC

ATIC DIAGRAM


7
8
9
10
11
A
B
C
D
E
F
G
KU9332-3 VOLUME UNIT
KU9332-1 MAIN UNIT
KU9333-4 H/P UNIT
KU9333-3 TONE UNIT
KU9333-1 TUNER UNIT
KU9333-2 DISPLAY UNIT
KU9332-4 AC IN UNIT
IC601A BA15218F
IC601B BA15218F
IC604 BA6208F
IC701A STK4152MK2
IC701B STK4152MK2
IC702 M5230L
IC403 BA178M12F
IC401 BA178M06F
IC105 LC7070NM
IC301 UPD7225GB
IC302 UPD7225GB
LCD301 LCD (CG1208)
RL701 RELAY
HP701
JK701 SPEAKER
T1 TRANS D-77
T002 FILTER
AC 230V/50HZ
AC PLUG

NOTES:
ALL RESISTANCE VALUES IN OHM.
K=1,000 OHM. M=1,000,000 OHM.
ALL CAPACITANCE VALUES IN MICRO F.
P=MICRO-MICRO F.
VOLTAGE VALUES IN VOLTS.
EACH VOLTAGE ARE MEASURED
AT NO SIGNAL INPUT CONDITION.
AMP.SECTION (KU-9332)
FANCTION POSITION AUX
TUNER SECTION (KU-9333)
AT FM98MHz (AM999kHz)

UTION:

fore returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the kage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is fective.

ARNING

NOT return the unit to the customer until the problem is located and corrected.

NOTES

ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

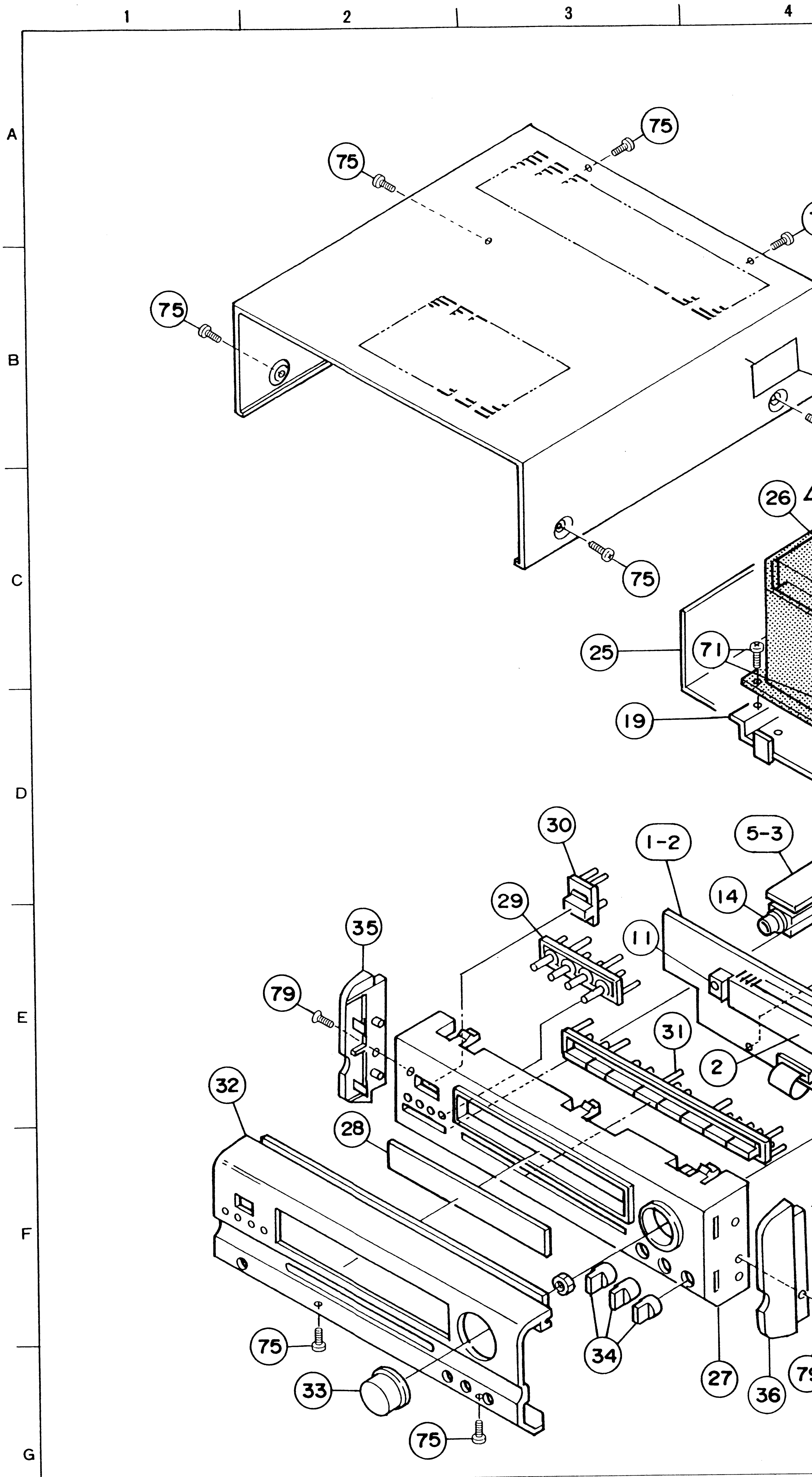
H

RECEIVER SECTION

PARTS LIST OF UDRA-77 EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	KU- 9333	Tuner Unit Ass'y		1S
1-1	—	Tuner Unit		(1)
1-2	—	Display Unit		(1)
1-3	—	Tone Unit		(1)
1-4	—	Preamp Unit		(1)
◉ 2	393 6006 007	LCD Ass'y(CG1206)	LC301	1
3	216 9013 004	FM Front End(U)		1
4	205 0847 004	3 P Ant. Terminal(PAL/F)		1
◉ 5	KU- 9332	Main Unit Ass'y		1S
5-1	—	Main Unit		(1)
5-2	—	AC IN Unit		(1)
5-3	—	Headphone Unit		(1)
5-4	—	Volume Unit		(1)
6	214 0167 005	Relay(G5Z-2A)		1
△★ 7	239 8016 002	Line Filter Coil	T002	1
8	254 4259 700	Chemicon 2200 μ F/35V	C520,521,518	3
★ 9	211 0805 009	Variable Resistor 100 kohm	VR604	1
△ 10	206 1015 029	Fuse(1A)	F001～005	5
11	499 0150 008	Remote Sensor	SBX1610-52	1
12	211 9105 001	Variable Resistor 50 kohm	Balance(VR603)	1
13	211 9013 003	Variable Resistor 50 kohm	Tone(VR601,602)	2
14	204 8370 020	Headphone Jack(D3.5)	HP701	1
15	201 8519 001	4 P Pin Jack(S-GND)	JK502	1
16	205 0754 003	6 P Pin Jack(S-GND)	JK501	1
△ 17	203 2349 009	2 P Inlet	CB001	1
◉ 18	411 9119 329	:Main chassis		1
◉ 19	412 9366 003	:Trans Bracket		1
20	104 0237 308	Foot Ass'y		4
21	417 9076 000	:Radiator		1
◉ 22	105 9269 008	:Rear Panel		1
★ 23	513 9345 000	Blind Label		1
◉ 24	412 3548 005	P.W.B. Catcher		3
◉ 25	412 9368 108	Shield Cover		1
△ 26	233 4584 009	Power Trans		1
◉ 27	146 9345 101	Inner Panel		1
28	146 9189 009	Window		1
29	113 9322 108	4 G Button		1
30	113 1460 013	Power Knob		1
31	113 9329 004	8 G Button		1
◉ 32	113 9234 009	Front Panel		1
33	112 9095 128	Volume Knob Ass'y		1
34	112 0645 166	Knob		3
35	146 9347 206	Side Plate(L)		1
36	146 9346 207	Side Plate(R)		1
◉ 37	102 0518 238	Top Cover		1
38	513 9343 109	Caution Label	Put on T. Cover	1
◉ 39	412 2814 028	Card Spacer(L=10)		1
40	009 9057 006	21 P FF Cable		1
41	205 0643 004	Short Pin		2
42	205 0730 056	13 P System Socket(Bu)	CB402	1
43	204 0284 022	15 P System Socket	CB401	1
44	205 0551 002	4 P Terminal	JK701	1
SCREWS				
71	473 7004 016	Tapping Screw(S) 4×6		8
72	473 7002 018	Tapping Screw(S) 3×8		6
73	473 7500 015	Tapping Screw(P) 3×8	Black	4
74	477 0064 107	Fixing Screw		12
75	473 7015 005	Tapping Screw(S) 3×6	Black	16
76	473 7508 046	Tapping Screw(P) 3×16	Black	5
77	473 7505 007	Tapping Screw(P) 2.6×8		3
78	477 0262 019	Special Screw		1
79	473 7009 008	FH.Tapping Screw(S) 3×6		2
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 0131 050	Cabinet Cover		1
◉ 102	503 9291 102	:Cushion		1
◉ 103	503 9292 005	:Top Cushion		1
◉ 104	501 9279 102	:Master Carton		1
105	GEN 7754	Envelope Sub Ass'y		1S
105-1	505 0283 018	:Poly Cover		1
◉ 105-2	511 9434 009	:Inst. Manual		1
105-3	394 0040 004	Battery(R6P)		1
◉ 105-4	206 2108 003	:AC Conn. with Plug		1
105-5	231 1914 003	Loop Antenna		1
105-6	395 0023 008	FM Ant. Ass'y		1
◉ 105-7	204 6471 002	13 P System Connector		1
◉ 105-8	204 6316 015	15 P System Connector		1
◉ 105-9	499 9711 009	Remocon	RC-180	1

EXPLODI



NOTE ON PARTS LIST

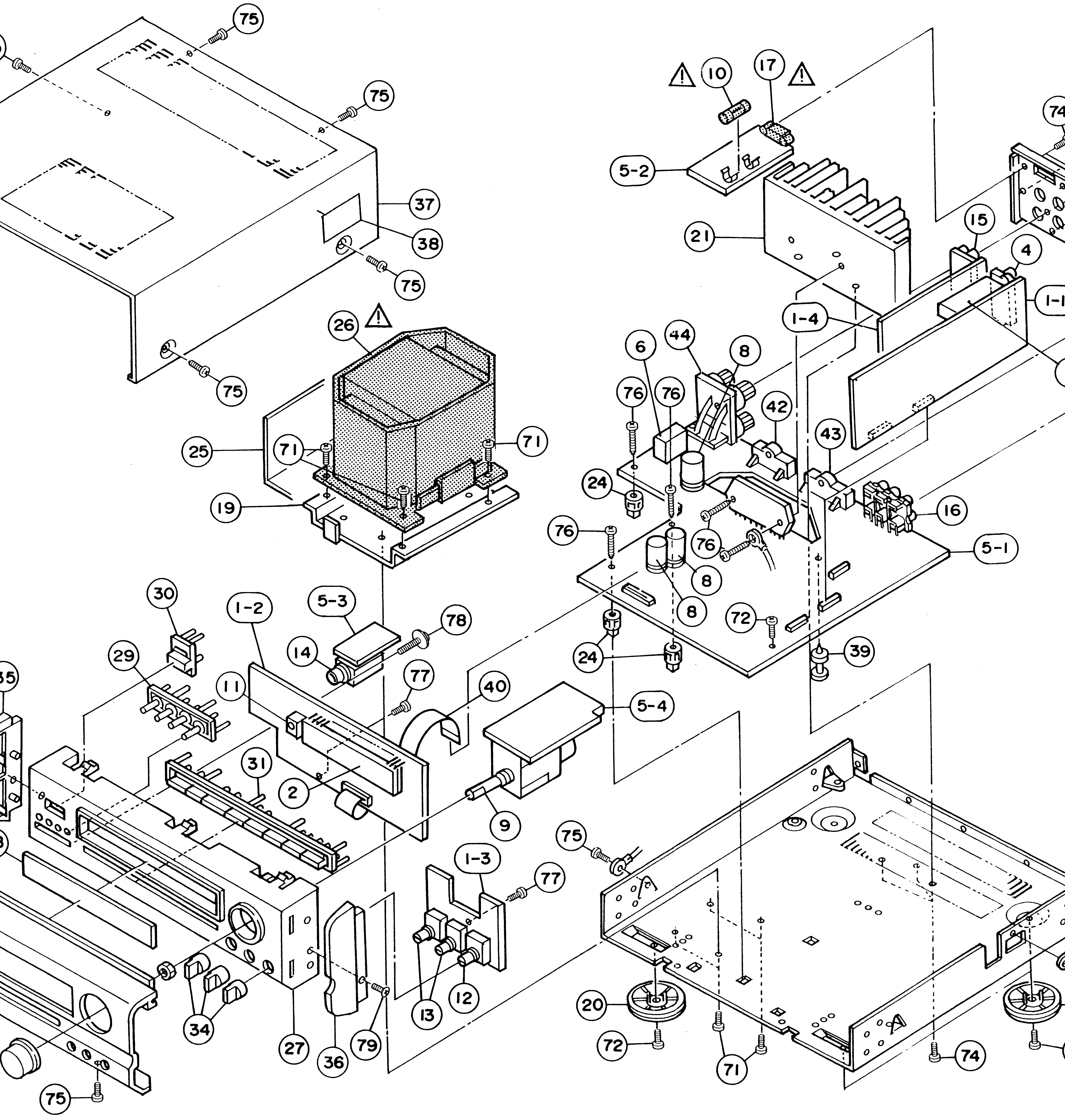
- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppli supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

H

EXPLODED VIEW

3 4 5 6 7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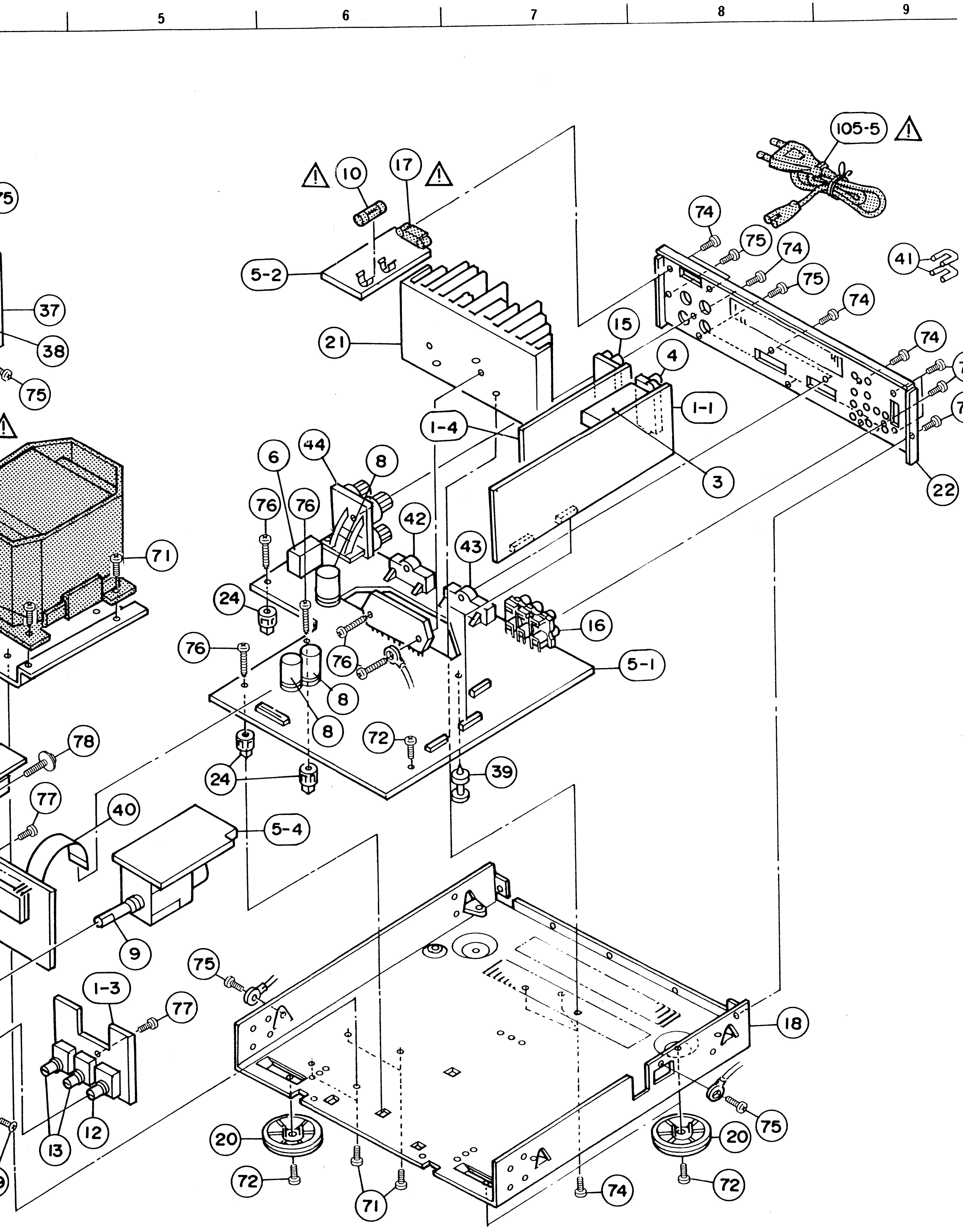
" are not always in stock and possibly to take a long period of time for suppling, or in some case
used.
y indicate "1" and "I" (i) to avoid mis-supplying.
its part number can not be supplied.
"★" is not illustrated in the exploded view.

⚠ ▨ have critical characteristics.
commended by the manufacturer.

D VIEW



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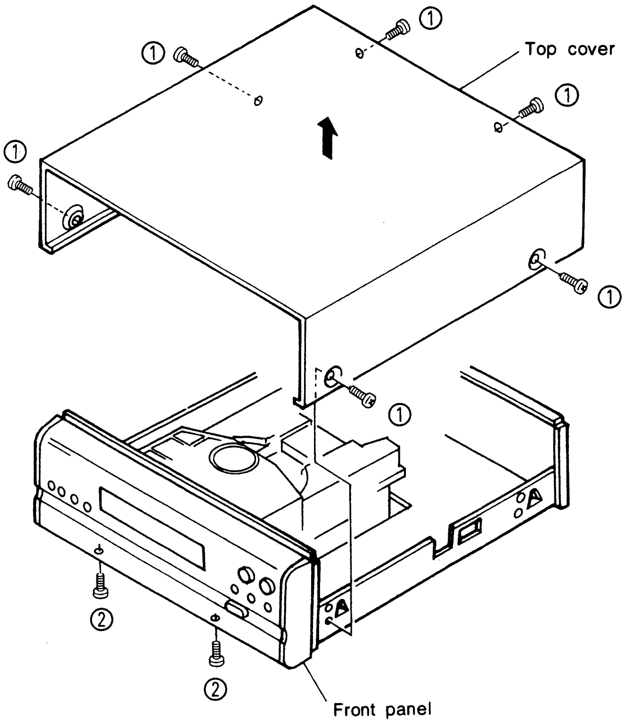
ng, or in some case

DISASSEMBLY PROCEDURES
(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

① Remove the six screws which fasten the top cover.

② Remove the two screws of the bottom side which fasten the front panel.

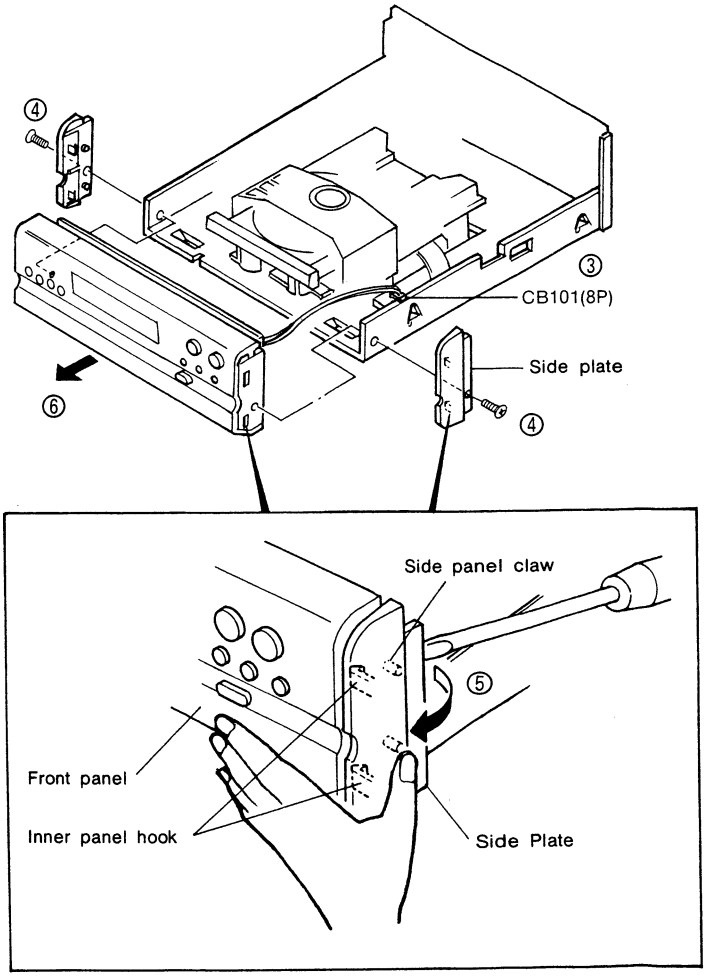

①
①
①
①
①
①
Top cover
②
②
Front panel

③ Disconnect connector CB101(8P), whcih is attached to the main unit.

④ Remove the 2 screws which fasten the side plate (L), (R).

⑤ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver).
Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.

⑥ Remove the front panel in the direction of the arrow.


④
③
CB101(8P)
Side plate
⑥
④
Side panel claw
⑤
Front panel
Inner panel hook
Side Plate

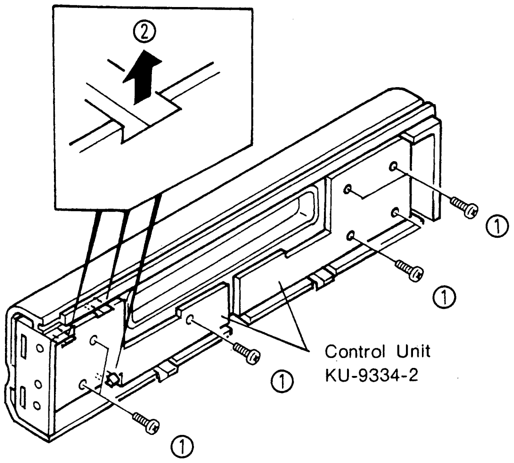
CD PLAYER SECTION

2. Removal of the Various Units

Control Unit (KU-9334-2)

① Remove the seven screws which fasten the Control unit and remove the board in the direction of the arrow.

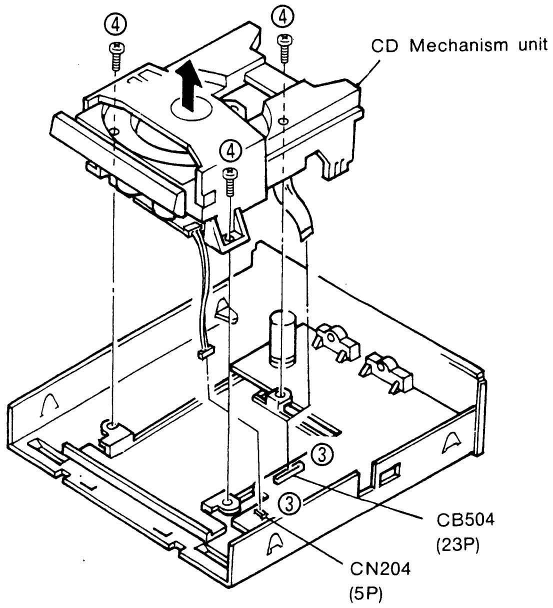
② Detach the inner panel hook's catch in the direction of the arrow.


②
①
①
①
①
Control Unit
KU-9334-2

3. Removal of the CD Mechanism Unit

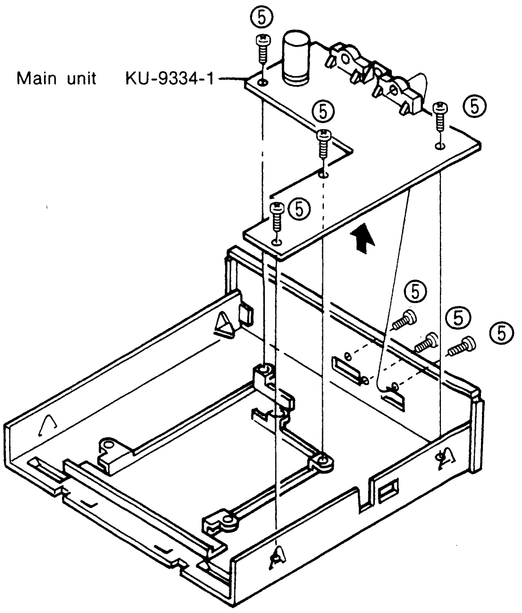
③ Disconnect connectors CN204(5P) and CB504(23P) which are attached to the main unit.

④ Remove the three screws which fasten the CD mechanism unit and remove the mechanism unit in the direction of the arrow.


④
④
④
CD Mechanism unit
③
③
CB504
(23P)
CN204
(5P)

Main Unit (KU-9334-1)

⑤ Remove the nine screws which fasten the main unit and remove the board in the direction of the arrow.


⑤
Main unit KU-9334-1
⑤
⑤
⑤
⑤
⑤
⑤

CONFIRMING METHOD OF SERVO

A microcomputer adopted to this unit has the service programs so as to perform confirming more easily with the operation buttons. Digital servo adopted to this unit is became automatic adjustment status in focus gain and tracking gain.

1. Actuating the Service Program

Disconnect 15P system connector of the main unit, and while pressing the ▶ PLAY and ⏏ OPEN/CLOSE buttons at the same time, switch on the system power. The power will be supplied automatically in 2 to 3 seconds, the display of the receiver will indicate " 01 ", and the system will enter the service mode.

NOTE: Once the service program starts the operation buttons cannot be used for normal operation.

2. Operation Function at Service Program Actuation

Button Operation	Operation Function	Explanation
⏏ OPEN/CLOSE	Opens or closes disc holder button.	• Open or closes only when disc is stopped. • Operate other keys after open or close.
■ STOP	Stops system function.	• Displays track number 01. • Press when adjustment completed or do it again.
▶ PLAY	Starts Focus servo and disc turns when the PLAY button is pushed while track number 01 is displayed.	• Push to check the tracking offset. • When completed, displays track number 02 → 03 (02: automatic adjustment).
	Starts Focus servo, Tracking servo, Slide servo and Spindle servo when the PLAY button is pushed while track number 03 is displayed.	• Push to check the HF level. • When completed, displays track number 04.
II PAUSE	Displays a result of Focus gain automatic adjustment when the PAUSE button is pushed while track number 03 is displayed.	• When completed, Display shows: TRACK TIME 1- XX XX TIME display shows automatic adjustment value. Displays: 01 27~00 01 or 00 EE
	Displays a result of Tracking gain automatic adjustment when the PAUSE button is pushed while the result of the automatic focus gain adjustment is displayed.	• When completed, Display shows: TRACK TIME 2- XX XX TIME display shows automatic adjustment value. Displays: 01 27~00 01 or 00 EE
Other Buttons	Unable to obtain normal function.	• Never attempt to operate the buttons other than the above. • If the buttons are erroneously pressed, promptly turn OFF the power switch.

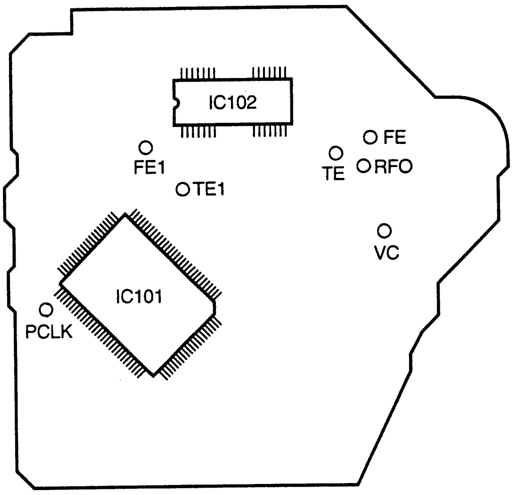
(Caution)

- During the service program is in operation, do not use remote control.

3. Confirming Method

(1) Required Measuring Equipment
  1) Dual-trace oscilloscope
  2) Test disc: CA-1094

(2) Check Point
  CD Mechanical unit PWB (pattern view)



(3) Confirming Procedure
  1) Actuate the service program.
  2) Check the value of Focus gain automatic adjustment.
  3) Check the value of Tracking gain automatic adjustment.
  4) Check for Tracking offset.
  5) Finish the service program and return the mode to normal operation (turn ON the power switch in normal manner).
  6) Check for HF level.

(4) Confirming Focus Gain
  1) Press ▶ PLAY button. (Track No. indication 03)
  2) Press II PAUSE button. (Track No. indication 1 –)
  3) Check for automatic adjustment value.
  Automatic adjustment value: 00 82 ~ 00 34 (normal temperature) (Test disc: CA-1094)
  01 04 ~ 00 28 (0°C~40°C)

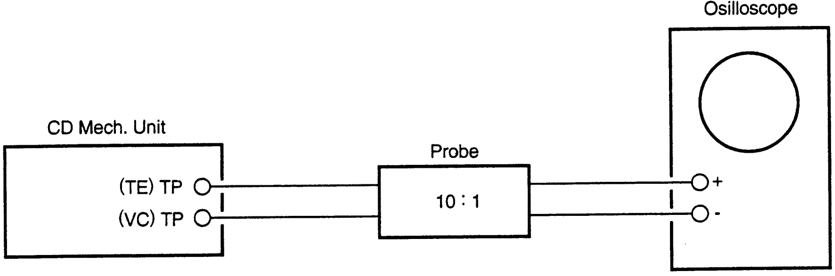
Note: As it is a possibility of abnormality in pick-up when automatic adjustment value is 00 EE or less than 00 27 execute the confirmation for pick-up according to pick-up replacement standard.
If there is no abnormality in pick-up as described in pick-up replacement standard notes, no problem will occur for disc playback even though the automatic adjustment value is 00 EE or less than 00 27

(5) Confirming Tracking Gain
  1) After checking the focus gain in (4) press II PAUSE button. (Track No. indication 2 –).
  2) Check for automatic adjustment value.
  Automatic adjustment value: 00 81 ~ 00 23 (normal temperature) (Test disc: CA-1094)
  01 03 ~ 00 18 (0°C~40°C)

Note: As it is a possibility of abnormality in pick-up when automatic adjustment value is 00 EE or less the 00 22 execute the confirmation for pick-up according to pick-up replacement standard.
If there is no abnormality in pick-up as described in pick-up replacement standard notes, no problem will occur for disc playback even though the automatic adjustment value is 00 EE or less than 00 22

(6) Confirming Tracking offset (E/F Balance)

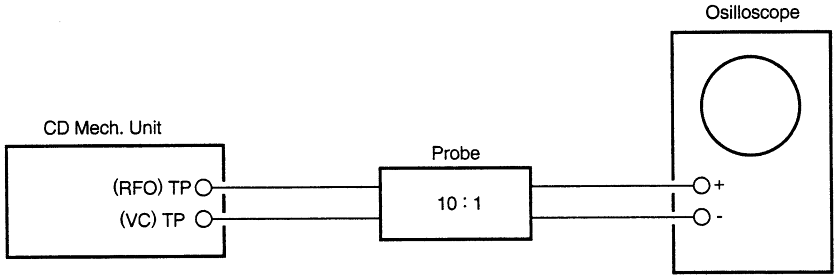
Connection

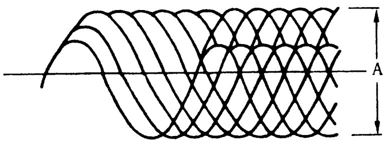
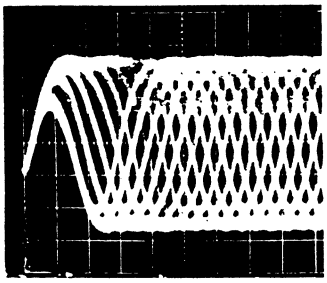

Osilloscope
CD Mech. Unit
(TE) TP
(VC) TP
Probe
10 : 1
+
-

Oscilloscope		Check	Step
V	H	(Oscilloscope)	1. Push ▲ OPEN/CLOSE button and load disc holder reference disk. 2. Push ▲ OPEN/CLOSE button and close disc holder. 3. Push ▶ PLAY button to turn disc. (Displays track number 03) 4. Short (+)(−) of oscilloscope and check the base line. 5. Confirm that upper and lower amplitude of the waveform is symmetric against 0V.
0.1 v/div	1~2 ms/div		

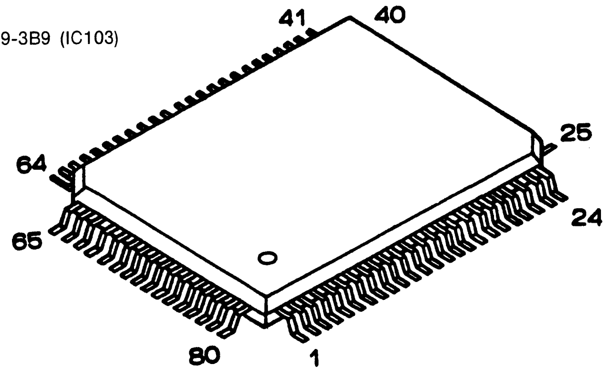
(7) Confirming HF Level

Connection


Osilloscope
CD Mech. Unit
(RFO) TP
(VC) TP
Probe
10 : 1
+
-

Oscilloscope		Check	Step
V	H	(Oscilloscope)	1. Push the ▶ PLAY button while track number 03 is displayed. (Displays track number 04) 2. Check HF level of oscilloscope. 3. Confirm that the waveform is in good shape. (eye pattern in center must be able to discriminate clearly.)
50 mv/div or 20 mv/div	0.2 μs/div or 0.5 μs/div	 A = 1.36±0.2 Vp-p 	
• Set input mode to ALTERNATE or CHOPPER.			

μPD75517GF-369-3B9 (IC103)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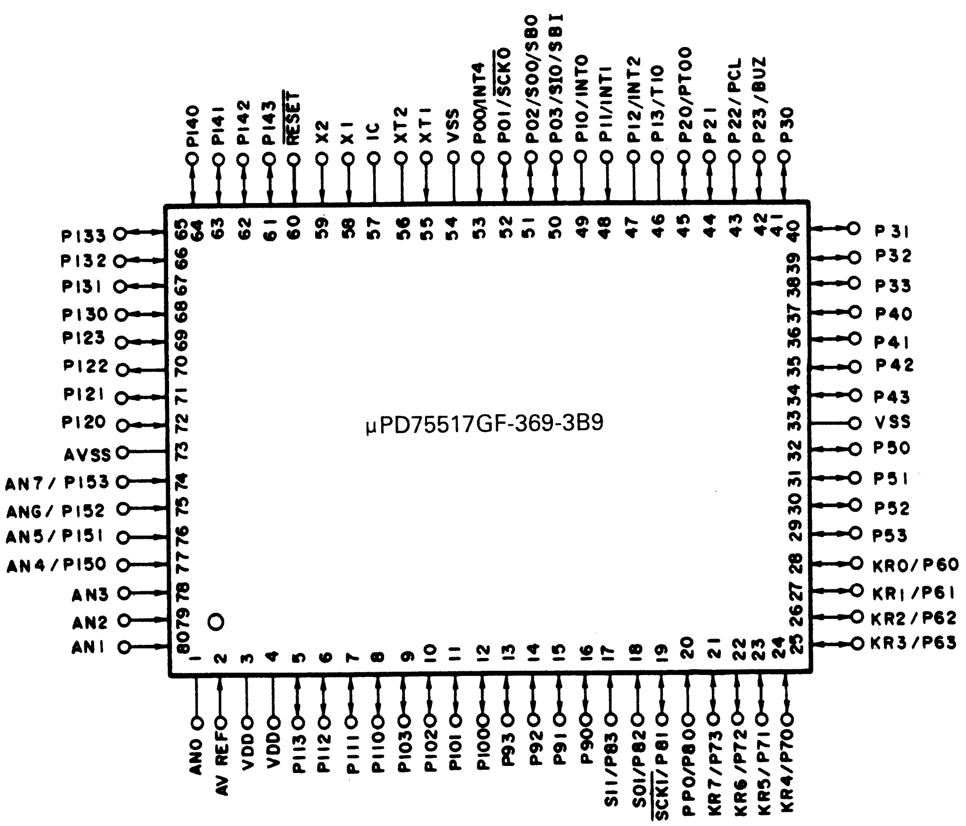

μPD75517GF-369-3B9
P140
P141
P142
P143
RESET
X2
X1
IC
XT2
XT1
VSS
P00/INT4
P01/SCKO
P02/SO0/SB0
P03/SI0/SBI
P10/INT0
P11/INT1
P12/INT2
P13/TI0
P20/PTO0
P21
P22/PCL
P23/BUZ
P30
P31
P32
P33
P40
P41
P42
P43
VSS
P50
P51
P52
P53
KR0/P60
KR1/P61
KR2/P62
KR3/P63
P133
P132
P131
P130
P123
P122
P121
P120
AVSS
AN7/P153
AN6/P152
AN5/P151
AN4/P150
AN3
AN2
AN1
AN0
AV REF
VDD
VDD
P113
P112
P111
P110
P103
P102
P101
P100
P93
P92
P91
P90
SI1/P83
SO1/P82
SCK1/P81
PPO/P80
KR7/P73
KR6/P72
KR5/P71
KR4/P70

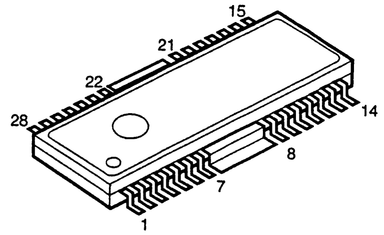
- **Pin Description**

Pin No.	Name	Port	I/O	Function	Operation Mode	Pin No.	Name	Port	I/O	Function	Operation Mode
1		AN0		Not used		41	SCLK	P30	OUT	Clock for SENS serial data read out	
2		AVREF		Not used		42	DATA	P23	OUT	LSI control	
3		VDD		+5 V power supply		43	XLT	P22	OUT	LSI control	
4		VDD		+5 V power supply		44	CLK	P21	OUT	LSI control	
5		P113		Not used		45	LASER	P20	OUT	Laser diode on/off	H = ON
6		P112		Not used		46	SENS	P13	IN	Use for SENS surveillance	
7		P111		Not used		47	GFS	INT2	IN	Used for GFS surveillance	
8		P110		Not used		48	SCOR	INT1	IN	Used for SCOR surveillance	
9	XRST	P103	OUT	LPeripheral IC reset	L→H	49	RXD	INT0	IN	RXD surveillance and reception	H→L→H
10		P102		Not used		50	SUB Q	SI0	IN	Used for sub code reception	H→L→H
11		P101		Not used		51		SO0		Not used	
12		P100		Not used		52	SQCK	$\overline{\text{SCK0}}$	OUT	Clock used for sub code reception	
13		P93		Not used		53	DSPENB	INT4	IN	Display transmission approval surveillance, L = Approval	
14		P92		Not used		54	GND	VSS			
15	PTSEARCH	P91		Outputs "H" during high-speed search	L→H→L	55		XT1		Not used; connected to GND	
16		P90		Not used		56		XT2		Not used	
17	DISPTRIG	SI1	IN	Display communications start trigger	H→L	57		IC		Not used; connected to GND	
18	DISPDATA	S01	OUT	Data line for LCD		58		X1		Ceramic oscillator, 4.00 MHz	
19	DISPCLK	$\overline{\text{SCK1}}$	OUT	Communications clock for the display		59		X2		Ceramic oscillator	
20		PP0/P80		Not used		60		$\overline{\text{RESET}}$	IN	Connected to RESET IC	L→H
21		KR7		Not used		61	FOK	P143	IN	Used for FOK surveillance	
22	KS2	KR6	OUT	Key scan (Edit Line)	L→H→L	62	SWOP	P142	IN	Used for Open Switch surveillance	L = Open
23	KS3	KR5	OUT	Key scan (FF Line)	L→H→L	63	SWCL	P141	IN	Used for Close Switch surveillance	L = Close
24	KS0	KR4	OUT	Key scan (OP/CL Line)	L→H→L	64		P140		Not used	
25		KR3/P63		Not used		65	CLS	P133	OUT	Tray Close	H = Close
26		KR2/P62		Not used		66	OPN	P132	OUT	Tray Open	H = Open
27		KR1/P61		Not used		67	DMUTE	P131	OUT	Digital mute on/off	L→H→L
28		KR0/P60		Not used		68	TXD	P130	OUT	Auto function transmission	
29		P53		Not used		69		P123		Not used	
30		P52		Not used		70	AMUTE	P122	OUT	Analog mute on/off, H = Off	H
31		P51		Not used		71	EMPH	P121	OUT	Emphasis on/off, H = On	
32		P50		Not used		72		P120		Not used	
33	GND	VSS		0 volts		73	GND	AVSS			
34		P43	IN	Not used		74	KR4	P153	IN	Key input	
35	SEL	P42	IN	Auto power off select	H = Auto mode	75	KR3	P152	IN	Key input	
36	CD-G	P41	IN	CD-G connection check, H = Connection		76	KR2	P151	IN	Key input	
37		P40	IN	Not used		77	KR1	P150	IN	Key input	
38		P33		Not used		78		AN3		Not used	
39		P32		Not used		79		AN2		Not used	
40		P31		Not used		80		AN1		Not used	

SEMICONDUCTORS

● IC's

BA6297AFP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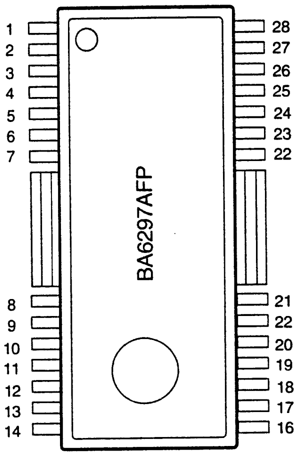
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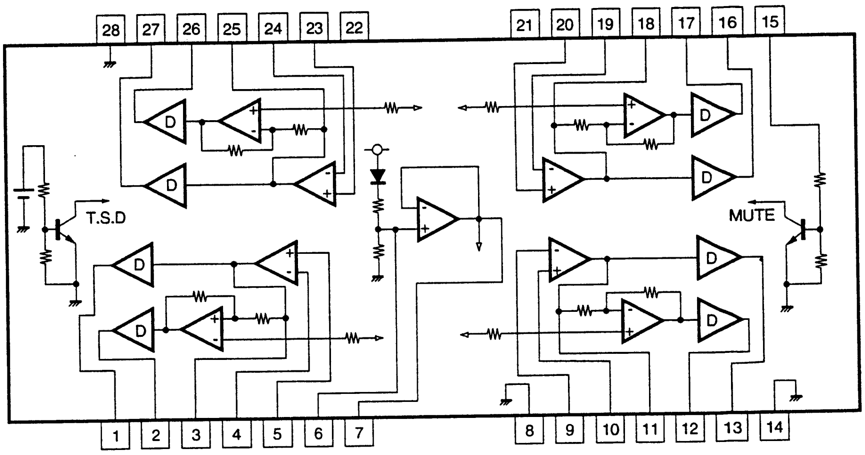
BA6297AFP


28
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16
15
D
T.S.D
MUTE
1
2
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4
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11
12
13
14

T.S.D: thermal short down
D: driver buffer

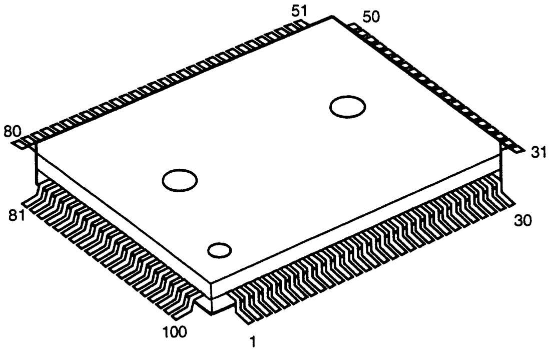
BA6297AFP Terminal Function

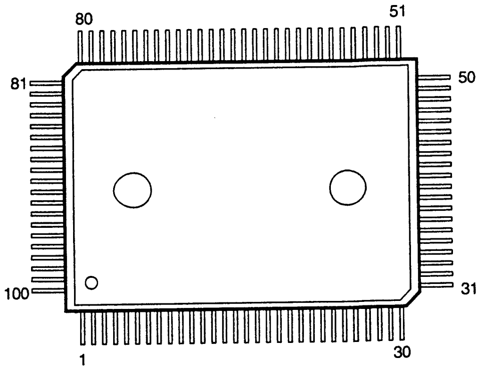
Pin No.	Symbol	I/O	Function
1		O	CH1 output terminal (+).
2		O	CH1 output terminal (−).
3		O	CH1 Pre-Amplifier output terminal.
4		I	CH1 Pre-Amplifier negative input terminal.
5		I	CH1 Pre-Amplifier positive input terminal.
6			Internal Vref-Amplifier resistor bias terminal.
7		O	Internal Vref-Amplifier output terminal.
8	GND		Vref-Amplifier and constant current ground.
9		I	CH2 Pre-Amplifier positive input terminal.
10		I	CH2 Pre-Amplifier negative input terminal.
11		O	CH2 Pre-Amplifier output terminal.
12		O	CH2 output terminal (−).
13		O	CH2 output terminal (+).
14	GND		CH2 and CH3 drive ground.

Pin No.	Symbol	I/O	Function
15		I	Driver mute control terminal.
16		O	CH3 output terminal (+).
17		O	CH3 output terminal (−).
18		O	CH3 Pre-Amplifier output terminal.
19		I	CH3 Pre-Amplifier negative input terminal.
20		I	CH3 Pre-Amplifier positive input terminal.
21	Vcc		CH2 and CH3 driver power supply.
22	Vcc		CH1 and CH4 driver power supply.
23		I	CH4 Pre-Amplifier positive input terminal.
24		I	CH4 Pre-Amplifier negative input terminal.
25		O	CH4 Pre-Amplifier output terminal.
26		O	CH4 output terminal (−).
27		O	CH4 output terminal (+).
28	GND		CH1 and CH4 driver ground.

Note: Each driver output polarity is reference to Pre-Amplifier output terminal polarity (+).

CXD2515Q





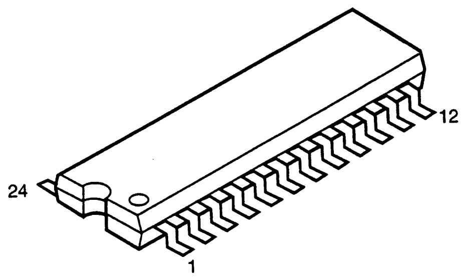
CXD2515Q Terminal Function

Pin No.	Symbol	I/O	Function
1	SRON	O	Sled drive output signal.
2	SRDR	O	Sled drive output signal.
3	SFON	O	Sled drive output signal.
4	TFDR	O	Tracking drive output signal.
5	TRON	O	Tracking drive output signal.
6	TRDR	O	Tracking drive output signal.
7	TFON	O	Tracking drive output signal.
8	FFDR	O	Focus drive output signal.
9	FRON	O	Focus drive output signal.
10	FRDR	O	Focus drive output signal.
11	FFON	O	Focus drive output signal.
12	VCOO	O	Osc. circuit output for analog EFM PLL.
13	VCOI	I	Osc. circuit output for analog EFM PLL.
14	TEST	I	Test terminal, normal GND.
15	DVss	–	Digital ground.
16	TES2	I	Test terminal, normally GND.
17	TES3	I	Test terminal, normally GND.
18	PDO	O	Change pump output for analog EFM PLL.
19	VPCO	O	PLL charge pump output for variable pitch.
20	VCKI	I	Clock input from external VCO for variable pitch.
21	AVD2	–	Analog power supply.
22	IGEN	I	Power supply terminal for OP amplifier.
23	AVS2	–	Analog ground.
24	ADII	I	A/D converter input terminal.
25	ADIO	O	OP amplifier output terminal.
26	RFDC	I	RF signal input.
27	TE	I	Tracking error signal input.
28	SE	I	Sled error signal input.
29	FE	I	Focus error signal input.
30	VC	I	Middle point voltage input terminal.
31	FILO	O	Filter output for master PLL.
32	FILI	I	Filter input for master PLL.
33	PCO	O	Charge pump output for master PLL.
34	CLTV	I	VCO control voltage input for master.
35	AVSI	–	Analog ground.
36	RFAC	I	EFM signal input.
37	BIAS	I	Asymmetry circuit constant current output.
38	ASY1	I	Asymmetry comparator voltage input.
39	ASY0	O	EFM full swing output.
40	AVDI	–	Analog power supply.

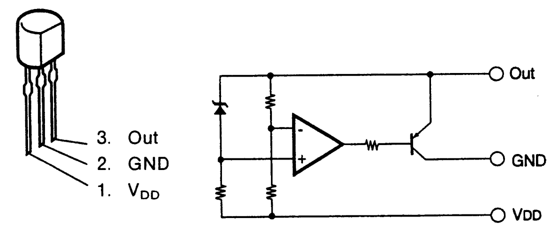
CD PLAYER SECTION

Pin No.	Symbol	I/O	Function
41	DV_{DD}	–	Digital power supply.
42	ASYE	I	Asymmetry circuit ON/OFF.
43	PSSL	I	Mode shift input of audio data output.
44	WDCK	O	48 bit slot D/A interface word clock.
45	LRCK	O	48 bit slot D/A interface LR clock.
46	DATA	O	DA16 output at PSSL=1, 48 bit slot serial data at PSSL=0.
47	BCLK	O	DA15 output at PSSL=1, 48 bit slot bit clock at PSSL=0.
48	64DATA	O	DA14 output at PSSL=1, 64 bit slot serial data at PSSL=0.
49	64BCLK	O	DA13 output at PSSL=1, 64 bit slot bit clock at PSSL=0.
50	64LRCK	O	DA12 output at PSSL=1, 64 bit slot LR clock at PSSL=0.
51	GTOP	O	DA11 output at PSSL=1, GTOP output at PSSL=0.
52	XUGF	O	DA10 output at PSSL=1, XUGF output at PSSL=0.
53	XPLCK	O	DA09 output at PSSL=1, XPLCK output at PSSL=0.
54	GFS	O	DA08 output at PSSL=1, GFS output at PSSL=0.
55	RFCK	O	DA07 output at PSSL=1, RFCK output at PSSL=0.
56	C2PO	O	DA06 output at PSSL=1, C2PO output at PSSL=0.
57	XRAOF	O	DA05 output at PSSL=1, XRAOF output at PSSL=0.
58	MNT3	O	DA04 output at PSSL=1, MNT3 output at PSSL=0.
59	MNT2	O	DA03 output at PSSL=1, MNT2 output at PSSL=0.
60	MNT1	O	DA02 output at PSSL=1, MNT1 output at PSSL=0.
61	MNT0	O	DA01 output at PSSL=1, MNT0 output at PSSL=0.
62	XTAI	I	X'tal Osc. circuit input.
63	XTAO	O	X'tal Osc. circuit output.
64	XTSL	I	X'tal select input terminal.
65	DVss	–	Digital ground.
66	FSTI	I	2/3 cycle input of Pin 62, 63
67	FSTO	O	2/3 cycle output of Pin 62, 63
68	C4M	O	4.2336 MHz output.
69	C16M	O	16.9344 MHz output.
70	MD2	I	Digital-Out ON/OFF control terminal.
71	DOUT	O	Digital-Out output terminal.
72	EMPH	O	Playback disc emphasis mode output.
73	WFCK	O	WFCK output.
74	SCOR	O	Sub code sync output terminal.
75	SBSO	O	Sub P~W serial output.
76	EXCK	I	Clock input for SBSO read out.
77	SUBQ	O	Sub Q 80 bit output.
78	SQCK	I	Clock input for SQSO read out.
79	MUTE	I	Mute shift terminal.
80	SENS	O	SENS output.
81	XRST	I	System reset.
82	DIRC	I	Using at 1 track jump.
83	SCLK	I	Clock for SENS serial data read out.
84	DFSW	I	DFCT shift terminal.
85	ATSK	I	Anti-shock terminal.
86	DATA	I	Serial data input from CPU.
87	XLAT	I	Latch input from CPU.
88	CLOK	I	Serial data transfer clock input from CPU.

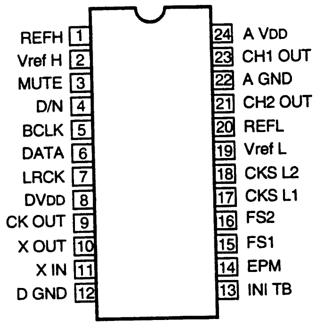
LC78835M

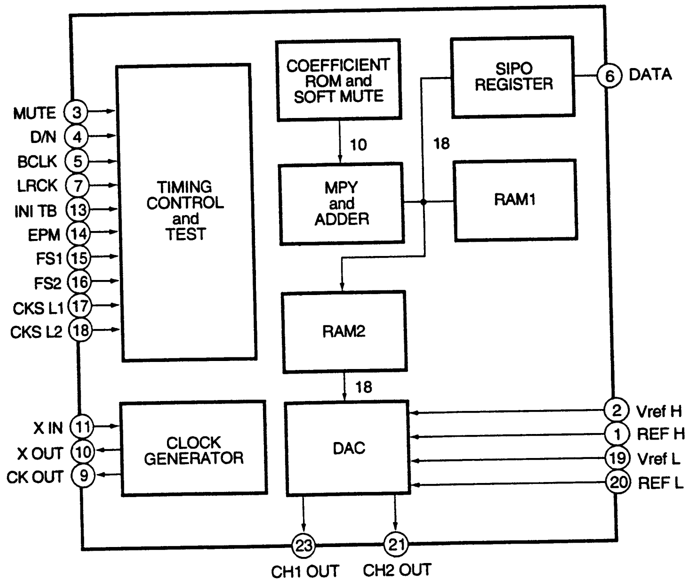


PST600F

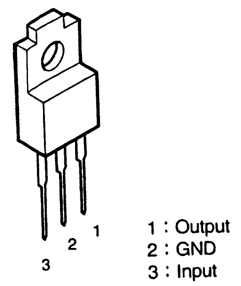

3. Out
2. GND
1. VDD
Out
GND
VDD

LC78835M

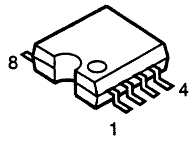

REFH 1
Vref H 2
MUTE 3
D/N 4
BCLK 5
DATA 6
LRCK 7
DVDD 8
CK OUT 9
X OUT 10
X IN 11
D GND 12
24 A VDD
23 CH1 OUT
22 A GND
21 CH2 OUT
20 REFL
19 Vref L
18 CKS L2
17 CKS L1
16 FS2
15 FS1
14 EPM
13 INI TB


COEFFICIENT ROM and SOFT MUTE
SIPO REGISTER
6 DATA
MUTE 3
D/N 4
BCLK 5
LRCK 7
INI TB 13
EPM 14
FS1 15
FS2 16
CKS L1 17
CKS L2 18
TIMING CONTROL and TEST
10
18
MPY and ADDER
RAM1
RAM2
18
X IN 11
X OUT 10
CK OUT 9
CLOCK GENERATOR
DAC
2 Vref H
1 REF H
19 Vref L
20 REF L
23
21
CH1 OUT
CH2 OUT

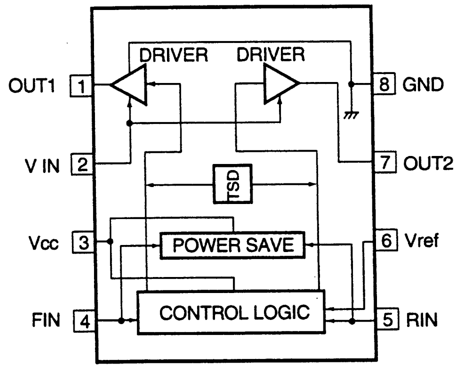
BA178M05 (IC251)


1
2
3
1 : Output
2 : GND
3 : Input

BA6287F

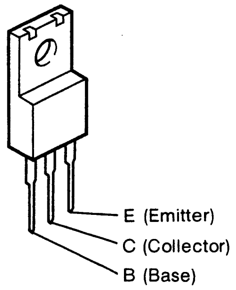


BA6287F

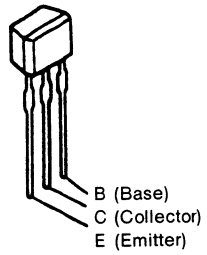

DRIVER
DRIVER
OUT1 1
V IN 2
Vcc 3
FIN 4
8 GND
7 OUT2
6 Vref
5 RIN
TSD
POWER SAVE
CONTROL LOGIC

● Transistors

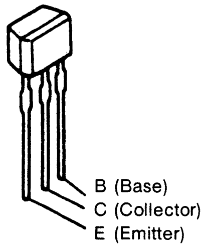
2SD1762 (E/F)


E (Emitter)
C (Collector)
B (Base)

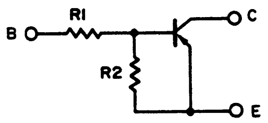
DTA124ES PNP type
DTC144ES
DTC323TS NPN type
DTC114ES


B (Base)
C (Collector)
E (Emitter)

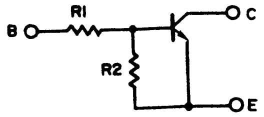
2SA933S(S)


B (Base)
C (Collector)
E (Emitter)

PNP type



NPN type

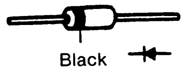


	R1	R2
DTA124ES	22k ohm	22k ohm

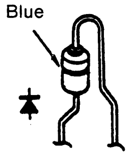
	R1	R2
DTC144ES	47k ohm	47k ohm
DTC323TS	2.2k ohm	–
DTC114ES	10k ohm	10k ohm

● Diodes

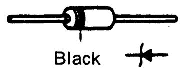
1SS252



1SR35-200A

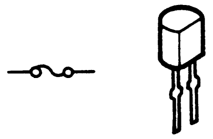


MTZJ4.7A
MTZJ8.2A



● IC PROTECTORS

ICP-N15 (IC253)

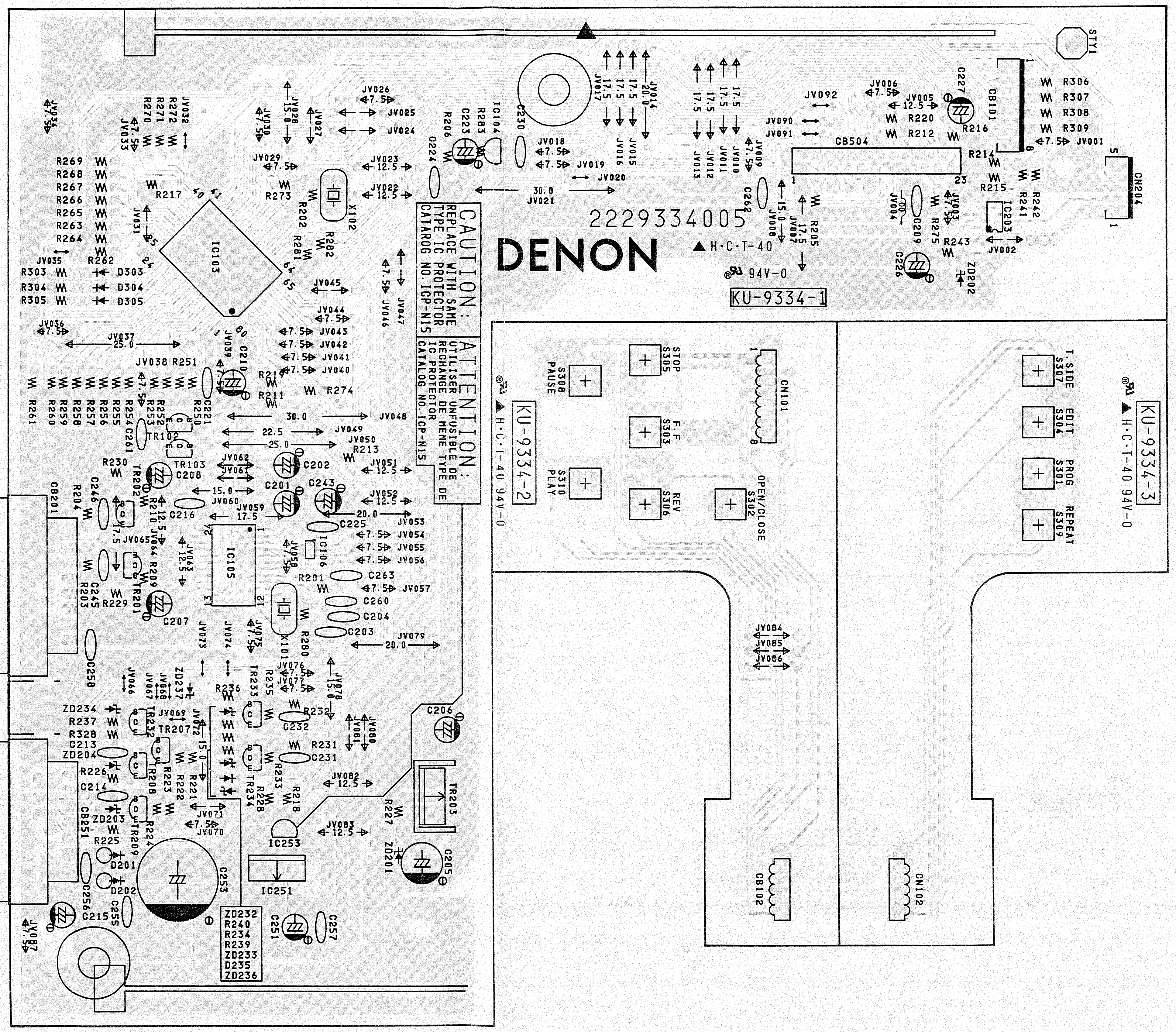


CD PLAYER SECTION

PRINTED WIRING BOARD

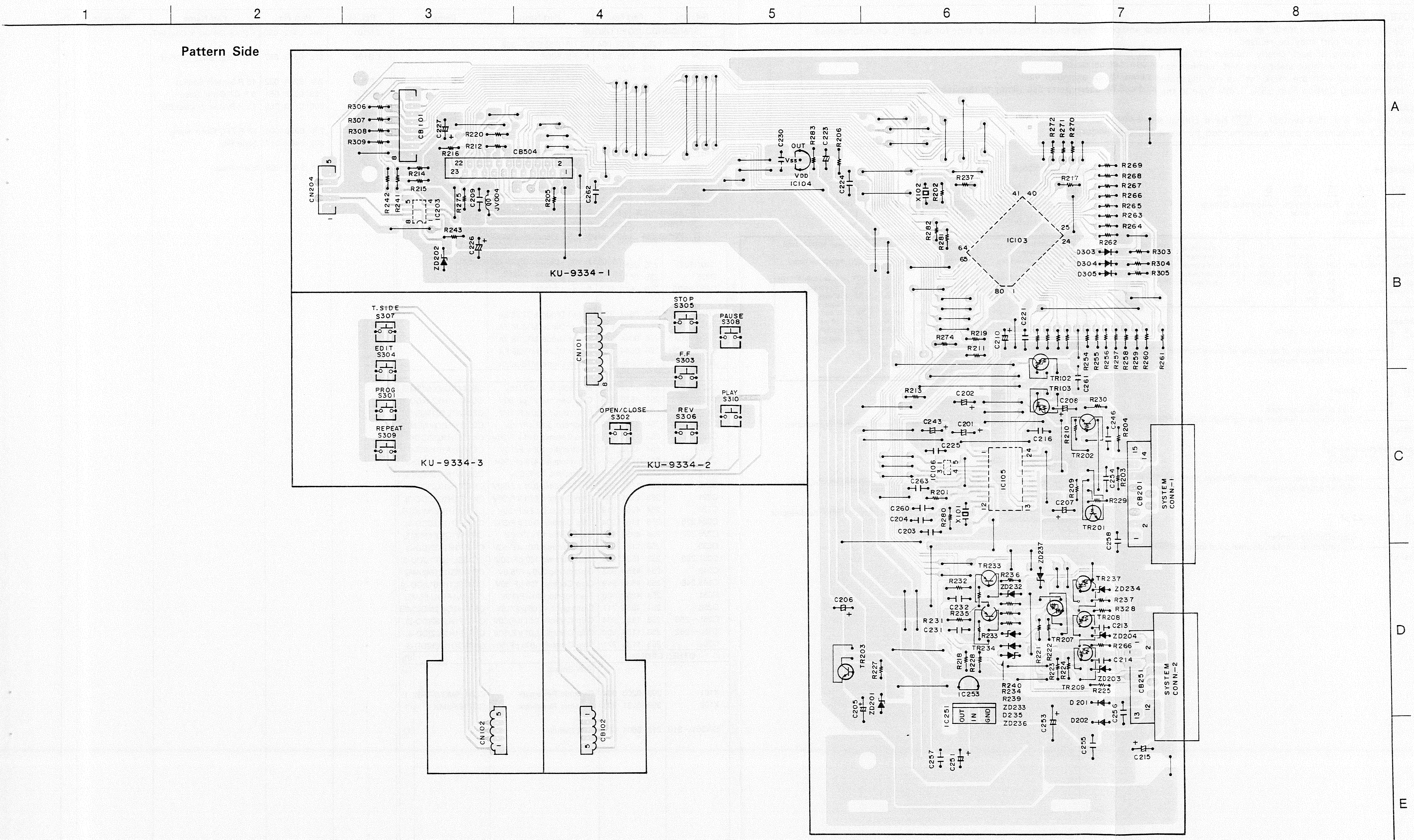
KU-9282 CD UNIT ASS'Y
Component Side

KU-9334 CD UNIT ASS'Y	
1	MAIN UNIT
2	DISPLAY UNIT


1
2
3
4
5
6
7
8
A
B
C
D
E
CAUTION: REPLACE WITH SAME TYPE IC PROTECTOR CATAROG NO. ICP-N15
ATTENTION: UTILISER UNFUSIBLE DE RECHANGE DE MEME TYPE DE IC PROTECTOR CATALOG NO. ICP-N15
DENON
2229334005
▲H·C·T-40
94V-0
KU-9334-1
KU-9334-2
KU-9334-3
IC103
IC105
IC106
IC104
IC203
IC251
IC253
CB101
CB201
CB251
CB504
CB102
CN101
CN102
CN204
X101
X102
TR102
TR103
TR201
TR202
TR203
TR207
TR208
TR209
TR232
TR233
TR234
C253
D201
D202
D303
D304
D305
ZD201
ZD202
ZD203
ZD204
ZD234
STY1
S308 PAUSE
S305 STOP
S303 F.F
S310 PLAY
S306 REV
S302 OPEN/CLOSE
S307 T.SIDE
S304 EDIT
S301 PROG
S309 REPEAT
ZD232
R240
R234
R239
ZD233
D235
ZD236

CD PLAYER SECTION

Pattern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
KU-9334-1
KU-9334-2
KU-9334-3
CN204
CB101
CB504
CN101
CN102
CB102
CB201
CB251
SYSTEM CONN-1
SYSTEM CONN-2
IC103
IC104
IC105
IC106
IC203
IC251
IC253
OUT
IN
GND
VDD
Vss
T. SIDE S307
EDIT S304
PROG S301
REPEAT S309
STOP S305
PAUSE S308
F.F S303
PLAY S310
REV S306
OPEN/CLOSE S302
R306
R307
R308
R309
R220
R212
R216
R214
R215
R242
R241
R275
R243
R205
R283
R206
R237
R202
R217
R272
R271
R270
R269
R268
R267
R266
R265
R263
R264
R262
R282
R281
R303
R304
R305
R274
R219
R211
R254
R255
R256
R257
R258
R259
R260
R261
R213
R230
R210
R204
R201
R280
R209
R203
R229
R232
R235
R231
R236
R233
R218
R228
R227
R221
R222
R223
R224
R225
R240
R234
R239
R328
C227
C209
C226
C262
C230
C223
C224
C210
C221
C261
C202
C206
C243
C201
C246
C216
C225
C263
C260
C204
C203
C207
C234
C258
C232
C231
C213
C214
C205
C253
C256
C255
C257
C251
C215
X101
X102
JV004
ZD202
ZD201
ZD232
ZD233
ZD234
ZD235
ZD236
ZD237
ZD203
ZD204
D303
D304
D305
D201
D202
D235
TR102
TR103
TR201
TR202
TR203
TR207
TR208
TR209
TR233
TR234
TR237

CD PLAYER SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▩ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR

Type / Shape and performance / Power / Resistance / Allowable error / Others

RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

※ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number
1 8 — 2-digit effective number

- Units: ohm

1 R 2 ⇨ 1.2 ohm
2 — 1-digit effective number.
1 R — 2-digit effective number, decimal point indicated by R.

- Units: ohm

※ Capacity (electrolyte only)

2 2 R ⇨ 2200 μF
R — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

- Units: μF

2 R 2 ⇨ 2.2 μF
2 — 1-digit effective number.
2 R — 2-digit effective number, decimal point indicated by R.

- Units: μF

• Capacitors

Ex.: CE 04W 1H 2R2 M BP

Type / Shape and performance / Dielectric strength / Capacity / Allowable error / Others

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V		C : CSA part
CM : Mica	2B : 125V	P : +100% −0%	W : UL-CSA type
CF : Metallized	2C : 160V		F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

※ Capacity (except electrolyte)

2 R 2 ⇨ 2200pF = 2200 μF = 0.002 μF
2 — (More than 2) — Indicates number of zeros after effective number.
2 R — 2-digit effective number.

- Units: μF

2 2 1 ⇨ 220pF
1 — (0 or 1) — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

KU-9334 PARTS LIST OF UCD-77

Ref. No.	Part No.	Part Name	Remarks	
SEMICONDUCTORS GROUP				
IC103	262 2233 004	IC UPD75517GF--369		
IC104	263 1026 901	IC PST600F		
IC105	262 1824 906	IC LC78835M		
IC106	262 2257 909	IC TC4S81F TE85L		
IC203	263 0994 908	IC BA6287F		
IC251	263 1024 000	IC BA178M05		
IC253	268 0073 905	IC ICP-N15		
TR102	269 0020 906	Transistor DTC114ES	Built in Resistor	
TR103	269 0063 905	Transistor DTA124ES	Built in Resistor	
TR201,202	269 0072 909	Transistor DTC323TS		
TR203	274 0120 002	Transistor 2SD1762(E/F)		
TR207～209	269 0040 902	Transistor DTC144ES	Built in Resistor	
TR232	269 0020 906	Transistor DTC114ES	Built in Resistor	
TR233,234	271 0192 905	Transistor 2SA933S(S)		
D201,202	276 0553 905	Diode 1SR35-200A(T93X)		
D235	276 0616 907	Diode 1SS252		
D303～305	276 0616 907	Diode 1SS252		
ZD201	276 0644 924	Zener Diode MTZJ8.2A		
ZD202	276 0643 970	Zener Diode MTZJ4.7A		
ZD203,204	276 0644 924	Zener Diode MTZJ8.2A		
ZD232～234	276 0644 924	Zener Diode MTZJ8.2A		
ZD236,237	276 0644 924	Zener Diode MTZJ8.2A		
CAPACITORS GROUP				
C201,202	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)	
C203,204	253 4536 983	Chip Ceramic 22 pF/50V	CC45SL1H220J(DD-3)	
C205	254 4254 954	Electrolytic 220 μ F/16V	CE04W1C221M(SME)	
C206～208	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)	
C209	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C210	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)	
C213,214	253 1179 987	Chip Ceramic 470 pF/50V	CK45B1H471K(DD-3)	
C215	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M(SME)	
C216	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C221	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C223	254 4260 919	Electrolytic 0.22 μ F/50V	CE04W1HR22M(SME)	
C224,225	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C226,227	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M(SME)	
C230	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C231,232	253 4538 949	Chip Ceramic 100 pF/50V	CC45SL1H101J(DD-3)	
C243	254 4250 932	Electrolytic 220 μ F/5.6V	CE04W0J221M(SME)	
C245,246	253 4538 949	Chip Ceramic 100 pF/50V	CC45SL1H101J(DD-3)	
C251	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M(SME)	
C253	254 4255 717	Electrolytic 4700 μ F/16V	CE04W1C472MC(SME)	
C255～258	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C260～262	253 1181 904	Chip Ceramic 0.01 μ F/50V	CK45F1H103Z(DD-3)	
C263	253 1180 921	Chip Ceramic 1000 pF/50V	CK45B1H102K(DD-3)	
OTHER GROUP				Q'ty
	—	(P.W.Board)		(1)
X101	399 0200 904	Ceramic Resonator	CSA4.00MGW-TF01	1
X102	399 0191 903	Ceramic Resonator	CST16.93MX	1
SW301～310	212 5604 907	Tact Switch		11

Ref. No.	Part No.	Part Name	Remarks	Q'ty
CN101	204 2612 030	8 P KR-DA Conn. Cord WT		1
CB101	205 0343 087	8 P Conn. Base(KR-PH)		1
CB201	204 8284 022	15 P System Socket		1
CB204	205 0829 051	5 P CT Conn. Base		1
CB251	205 0730 056	13 P System Socket(BU)		1
CB504	205 0990 003	23 P FFC Conn. Base		1
	205 0452 017	Style Pin		1
	412 9483 009	Earth Plate		1

PARTS LIST OF CD MECHANISM UNIT

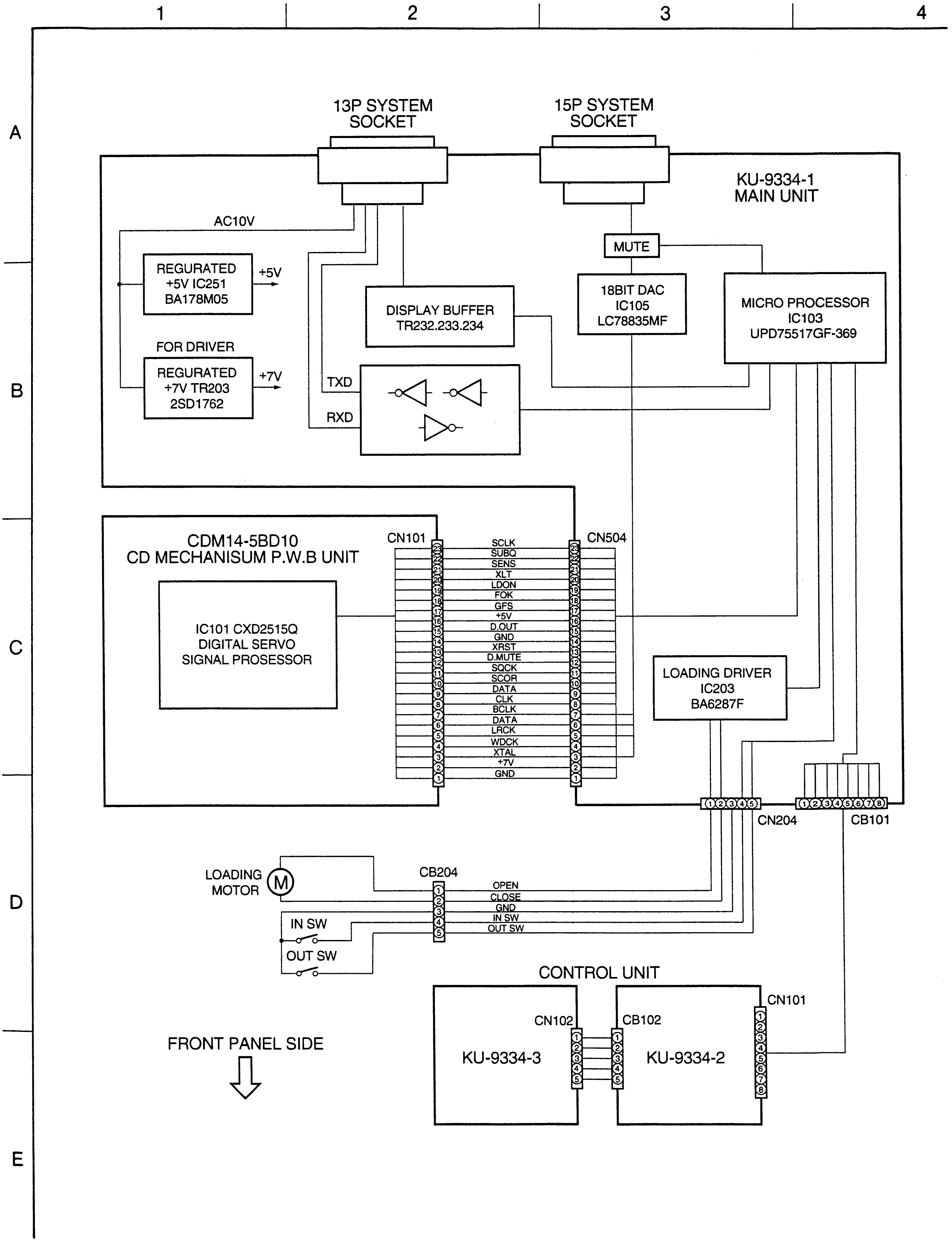
SA4 6494 32A CD MECHANISM P.W.B. UNIT ASS'Y

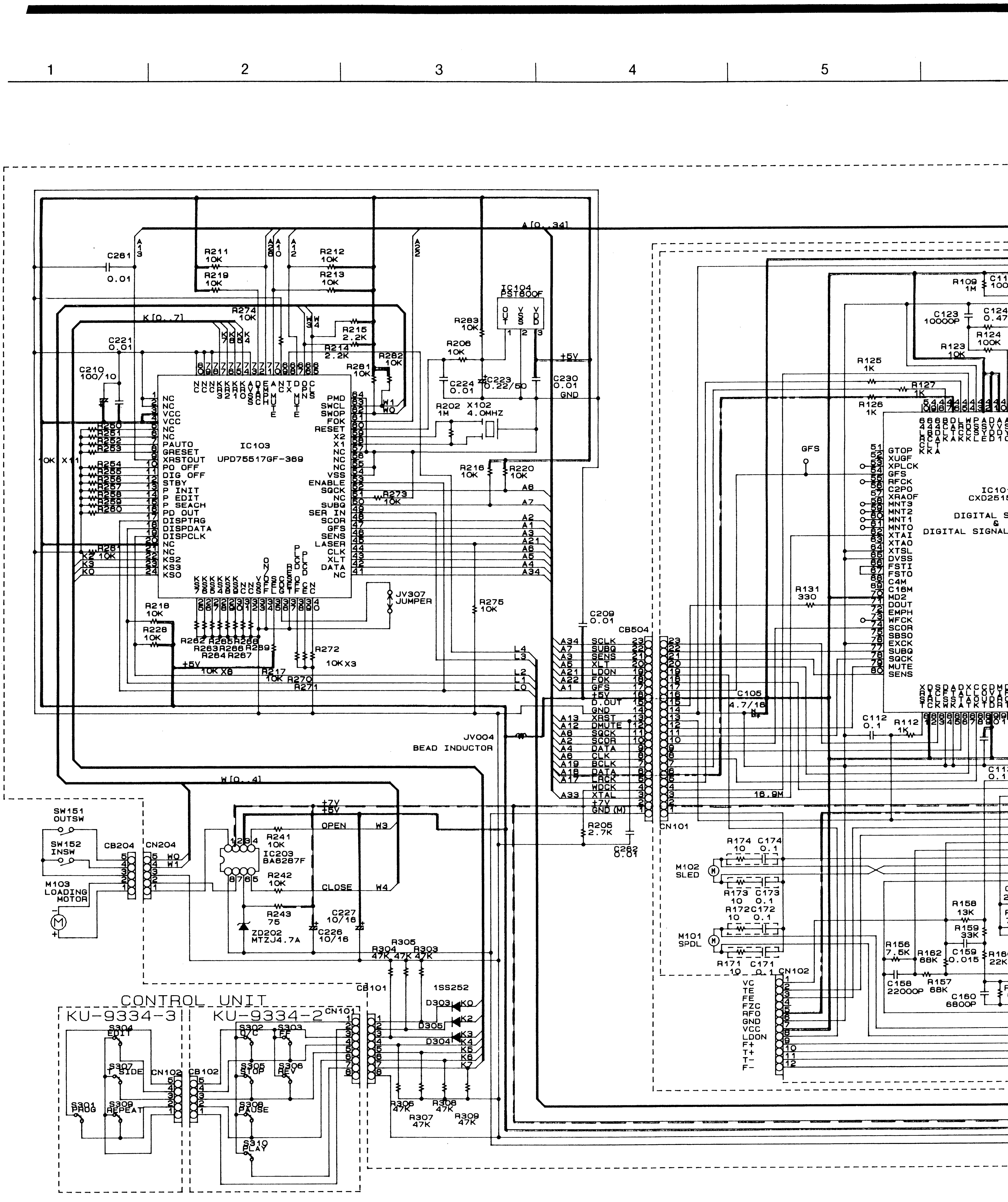
Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 1879 003	IC CXD2515Q	
IC102	926 0000 100	IC BA297AFP	
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
R101	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R102	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R103	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R104	247 0011 902	Chip Carbon 33 kohm 1/10W	RM73B--333J
R105	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R106,107	247 0008 960	Chip Carbon 3.3 kohm 1/10W	RM73B--332J
R108	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R109	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R110	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R112	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R113,114	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R117,118	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R121,122	247 0010 929	Chip Carbon 15 kohm 1/10W	RM73B--153J
R123	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R124	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R125～127	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R131	247 0006 920	Chip Carbon 330 ohm 1/10W	RM73B--331J
R151～156	247 0009 956	Chip Carbon 7.5 kohm 1/10W	RM73B--752J
R157	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R158	247 0010 916	Chip Carbon 13 kohm 1/10W	RM73B--133J
R159	247 0011 902	Chip Carbon 33 kohm 1/10W	RM73B--333J
R160	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R161	247 0101 980	Chip Carbon 4.7 ohm 1/10W	RM73B--4R7J
R162,163	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
CAPACITORS GROUP			
C101	257 0008 941	Chip Ceramic 470 pF/50V	CK73B1H471K
C102	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C103	257 0008 941	Chip Ceramic 470 pF/50V	CK73B1H471K
C105	S11 3515 521	Chip Ceramic 4.7 μ F/16V	
C106	S11 6434 611	Chip Ceramic 1 μ F/16V	
C107	S11 6450 511	Chip Ceramic 2.2 μ F/16V	
C108	257 0013 907	Chip Ceramic 0.047 μ F/50V	CK73F1H473Z
C109	257 0009 908	Chip Ceramic 1500 pF/50V	CK73B1H152K
C110	S11 6301 700	Chip Ceramic 4700 pF/50V	
C111	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C112,113	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104K
C123	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C124	S11 6400 511	Chip Ceramic 0.47 μ F/25V	
C151,152	257 0008 967	Chip Ceramic 680 pF/50V	CK73B1H681K
C153	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104K
C154	257 0014 906	Chip Ceramic 0.33 μ F/25V	CK73F1E334K
C155,156	257 0008 967	Chip Ceramic 680 pF/50V	CK73B1H681K
C157,158	257 0012 982	Chip Ceramic 0.022 μ F/50V	CK73F1H223Z
C159	S11 6302 300	Chip Ceramic 0.015 μ F/50V	CK73B1H153K
C160	257 0012 953	Chip Ceramic 6800 pF/50V	CK73F1H682Z
C161	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
OTHER GROUP			
CN101	S15 6886 511	23 P Connector Base	
CN102	S15 6879 511	12 P Connector Base	
S101	S15 7208 511	Leaf Switch (Limit)	

S16 4572 111 LOADING P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
OTHER GROUP			
S151	S15 7208 511	Leaf Switch (Limit)	
S152	S15 7208 511	Leaf Switch (Limit)	
CN151	S15 6894 311	5 P Connector Base (L Type)	

WIRING DIAGRAM


1
2
3
4
A
B
C
D
E
13P SYSTEM SOCKET
15P SYSTEM SOCKET
KU-9334-1
MAIN UNIT
AC10V
MUTE
REGURATED
+5V IC251
BA178M05
+5V
DISPLAY BUFFER
TR232.233.234
18BIT DAC
IC105
LC78835MF
MICRO PROCESSOR
IC103
UPD75517GF-369
FOR DRIVER
REGURATED
+7V TR203
2SD1762
+7V
TXD
RXD
CDM14-5BD10
CD MECHANISUM P.W.B UNIT
CN101
CN504
IC101 CXD2515Q
DIGITAL SERVO
SIGNAL PROSESSOR
SCLK
SUBQ
SENS
XLT
LDON
FOK
GFS
+5V
D.OUT
GND
XRST
D.MUTE
SQCK
SCOR
DATA
CLK
BCLK
DATA
LRCK
WDCK
XTAL
+7V
GND
LOADING DRIVER
IC203
BA6287F
CN204
CB101
LOADING MOTOR
M
CB204
OPEN
CLOSE
GND
IN SW
OUT SW
IN SW
OUT SW
CONTROL UNIT
CN102
CB102
CN101
KU-9334-3
KU-9334-2
FRONT PANEL SIDE


1
2
3
4
5
IC103
UPD75517GF-369
IC104
PST600F
IC203
BA6287F
IC10
CXD251
DIGITAL S
&
DIGITAL SIGNAL
CB504
CN101
CN102
CB204
CN204
CB101
CN101
CN102
CB102
SW151
OUTSW
SW152
INSW
M103
LOADING
MOTOR
M102
SLED
M101
SPDL
X102
4.0MHZ
JV307
JUMPER
JV004
BEAD INDUCTOR
ZD202
MTZJ4.7A
1SS252
D303
D304
D305
OPEN
CLOSE
A[0..34]
K[0..7]
W[0..4]
+5V
+7V
GND
GFS
16.9M
CONTROL UNIT
KU-9334-3
KU-9334-2
S304 EDIT
S307 T.SIDE
S301 PROG
S309 REPEAT
S302 U/C
S303 FF
S305 STOP
S306 REV
S308 PAUSE
S310 PLAY
SCLK
SUBQ
SENS
XLT
LDON
FOK
GFS
+5V
D.OUT
GND
XRST
DMUTE
SQCK
SCOR
DATA
CLK
BCLK
DATA
LRCK
WDCK
XTAL
+7V
GND (M)
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T+
T-
F-

+B LINE

+7V LINE

+5V LINE

L-ch LINE

R-ch LINE

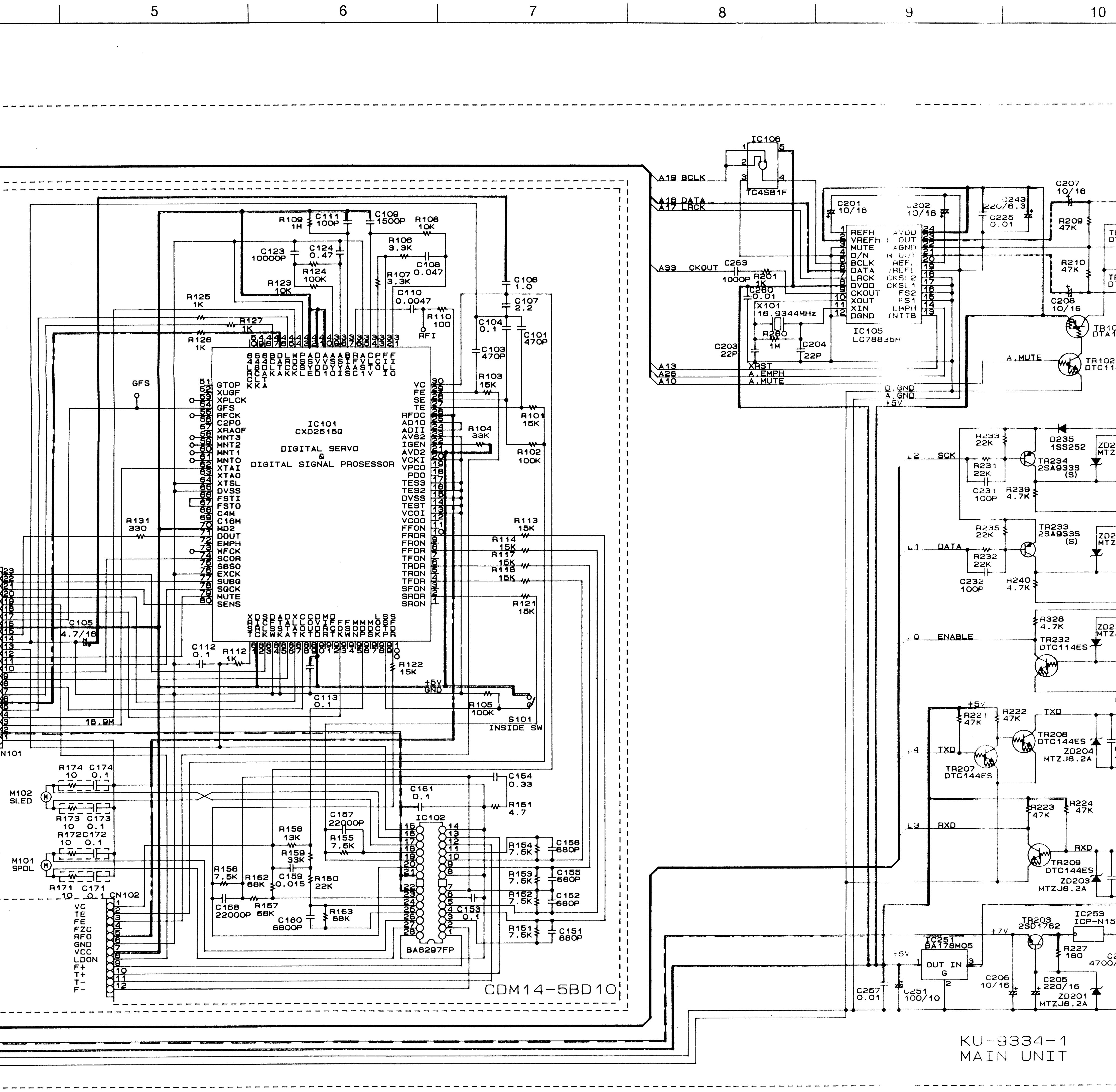
DIGITAL SIGNAL LINE

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

CAUTION:
Before return
leakage curre
defective.

WARNING
DO NOT retur

SCHEMATIC DIAGRAM


5
6
7
8
9
10
IC101
CXD2515Q
DIGITAL SERVO
&
DIGITAL SIGNAL PROCESSOR
IC102
BA6297FP
IC105
LC78835M
IC106
TC4S81F
X101
16.9344MHz
S101
INSIDE SW
M102
SLED
M101
SPDL
CN101
CN102
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T+
T-
F-
GFS
RFI
16.9M
A19 BCLK
A18 DATA
A17 LRCK
A33 CKOUT
A13
A26
A10
XRST
A.EMPH
A.MUTE
D.GND
A.GND
+5V
SCK
DATA
ENABLE
TXD
RXD
IC251
BA178M05
OUT IN
G
IC253
ICP-N15
TR203
2SD1762
TR207
DTC144ES
TR208
DTC144ES
TR209
DTC144ES
TR232
DTC114ES
TR233
2SA933S
TR234
2SA933S
CDM14-5BD10
KU-9334-1
MAIN UNIT

d with this symbol △ ▨ have critical characteristics.
eplacement parts recommended by the manifacturer.

CAUTION:

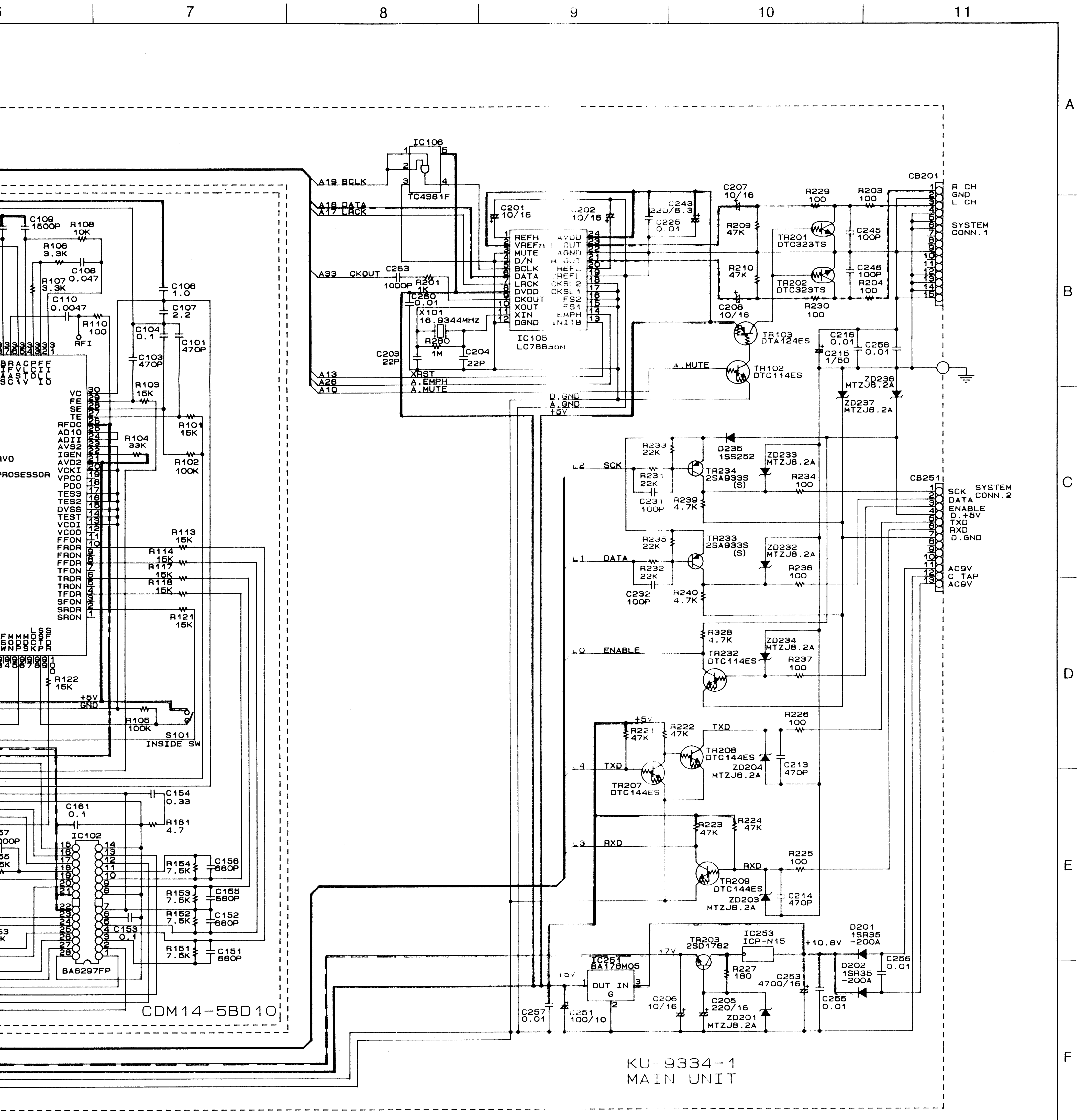
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING

DO NOT return the unit to the customer until the problem is located and corrected.

NOTES

ALL RESISTANCE VALUES IN OHM K = 1,00
ALL CAPACITANCE VALUES IN MICRO FAR
EACH VOLTAGE AND CURRENT ARE MEAS
CIRCUIT AND PARTS ARE SUBJECT TO CH


7
8
9
10
11
A
B
C
D
E
F
G
H
IC106
TC4S81F
A19 BCLK
A18 DATA
A17 LRCK
A33 CKOUT
C263 1000P
R201 1K
C280 0.01
X101 16.9344MHz
R280 1M
C203 22P
C204 22P
A13 XRST
A26 A.EMPH
A10 A.MUTE
C201 10/16
C202 10/16
C243 220/6.3
C225 0.01
IC105 LC78835M
REFH
VREFH
MUTE
D/N
BCLK
DATA
LRCK
DVDD
CKOUT
XOUT
XIN
DGND
AVDD
L OUT
AGND
R OUT
REFL
VREFL
CKSL2
CKSL1
FS2
FS1
EMPH
INITB
D.GND
A.GND
+5V
C207 10/16
C208 10/16
R229 100
R203 100
R209 47K
R210 47K
TR201 DTC323TS
TR202 DTC323TS
C245 100P
C246 100P
R204 100
R230 100
TR103 DTA124ES
TR102 DTC114ES
A.MUTE
C216 0.01
C215 1/50
C258 0.01
ZD236 MTZJ8.2A
ZD237 MTZJ8.2A
CB201
R CH
GND
L CH
SYSTEM CONN.1
L2 SCK
L1 DATA
L0 ENABLE
L4 TXD
L3 RXD
R233 22K
R231 22K
C231 100P
R239 4.7K
D235 1SS252
TR234 2SA933S (S)
ZD233 MTZJ8.2A
R234 100
R235 22K
R232 22K
C232 100P
R240 4.7K
TR233 2SA933S (S)
ZD232 MTZJ8.2A
R236 100
R328 4.7K
TR232 DTC114ES
ZD234 MTZJ8.2A
R237 100
CB251
SCK
DATA
ENABLE
D.+5V
TXD
RXD
D.GND
AC9V
C TAP
AC9V
SYSTEM CONN.2
+5V
R221 47K
R222 47K
TXD
TR208 DTC144ES
ZD204 MTZJ8.2A
C213 470P
R226 100
TR207 DTC144ES
R223 47K
R224 47K
RXD
TR209 DTC144ES
ZD203 MTZJ8.2A
C214 470P
R225 100
IC251 BA178M05
OUT IN G
+7V
TR203 2SD1762
IC253 ICP-N15
+10.8V
R227 180
C253 4700/16
D201 1SR35-200A
D202 1SR35-200A
C256 0.01
C255 0.01
C206 10/16
C205 220/16
ZD201 MTZJ8.2A
C257 0.01
C251 100/10
KU-9334-1
MAIN UNIT
C109 1500P
R108 10K
R106 3.3K
R107 3.3K
C108 0.047
C110 0.0047
R110 100
RFI
C106 1.0
C107 2.2
C104 0.1
C101 470P
C103 470P
R103 15K
R101 15K
R104 33K
R102 100K
VC
FE
SE
TE
RFDC
AD10
ADII
AVS2
IGEN
AVD2
VCKI
VPCO
PDO
TES3
TES2
DVSS
TEST
VCOI
VCOO
FFON
FRDR
FRON
FFDR
TFON
TRDR
TRON
TFDR
SFON
SRDR
SRON
VO
PROSESSOR
R113 15K
R114 15K
R117 15K
R118 15K
R121 15K
R122 15K
+5V
GND
R105 100K
S101
INSIDE SW
C154 0.33
C161 0.1
R161 4.7
IC102
BA6297FP
R154 7.5K
C156 680P
R153 7.5K
C155 680P
R152 7.5K
C152 680P
C153 0.1
R151 7.5K
C151 680P
CDM14-5BD10

g the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is

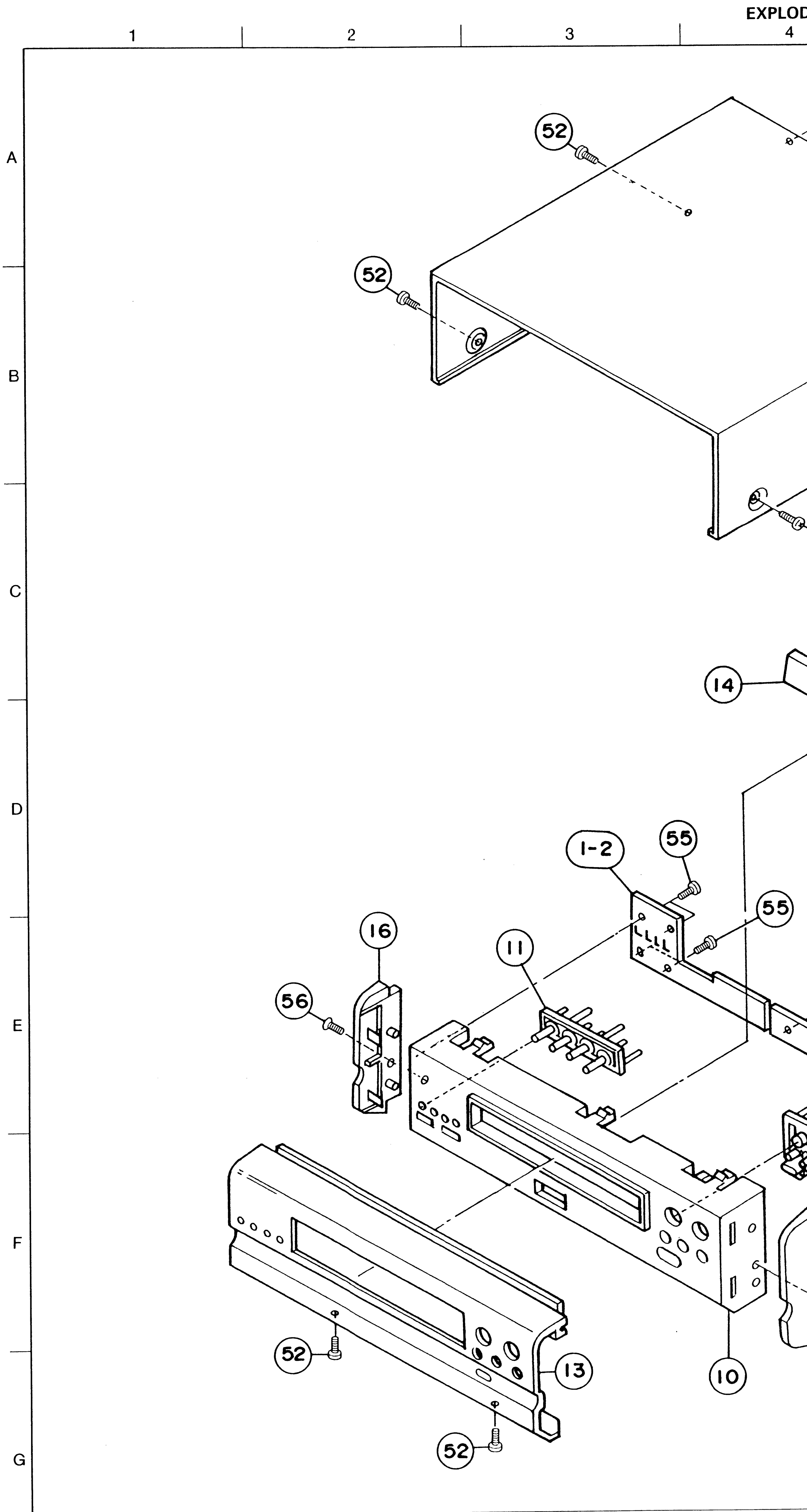
the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CD PLAYER SECTION

PARTS LIST OF UCD-77 EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	KU- 9334	Main Unit Ass'y		1S
1-1	—	Main Unit		(1)
1-2	—	Control Unit		(1)
2	254 4255 717	Chemicon 4700 µ F/16V		(1)
◉ 3	411 9115 316	:Main chassis		1
4	104 0237 308	Foot Ass'y		4
◉ 5	105 9235 126	:Black Panel		1
6	513 2358 007	:Laser Caution		1
7	449 9037 004	:Mecha Holder(CD)		1
◉ 8	337 0040 001	CD Mecha Unit		1
◉ 9	412 2814 028	Card Spacer(L=10)		1
◉ 10	146 9348 315	Inner Panel		1
11	113 9322 108	4 G Button		1
12	113 9330 006	6 G Button		1
◉ 13	144 9235 105	Front Panel		1
14	146 9349 107	Loader panel(CD)		1
15	146 9346 207	Side Plate(R)		1
16	146 9347 206	Side Plate(L)		1
◉ 17	102 9043 018	:Top Cover		1
★ 18	513 9390 000	:Rating Sheet		1
19	204 8284 022	15 P System Socket		1
20	205 0730 056	13 P System Socket(Bu)		1
★ 21	203 8385 009	5 P DA-DA Conn. Cord(Amp)		1
22	009 9058 005	23 P FF Cable		1
SCREWS				
51	473 7002 018	Tapping Screw(S) 3×8		11
52	473 7015 018	Tapping Screw(S) 3×8	Black	14
53	473 7015 005	Tapping Screw(S) 3×6	Black	3
54	473 7500 044	Tapping Screw(P) 3×8	Black	2
55	473 7505 007	Tapping Screw(P) 2.6×8		7
56	473 7009 008	FH.Tapping Screw(S) 3×6		2
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
71	505 0241 005	Cabinet Cover		1
72	503 9293 207	Cushion		1

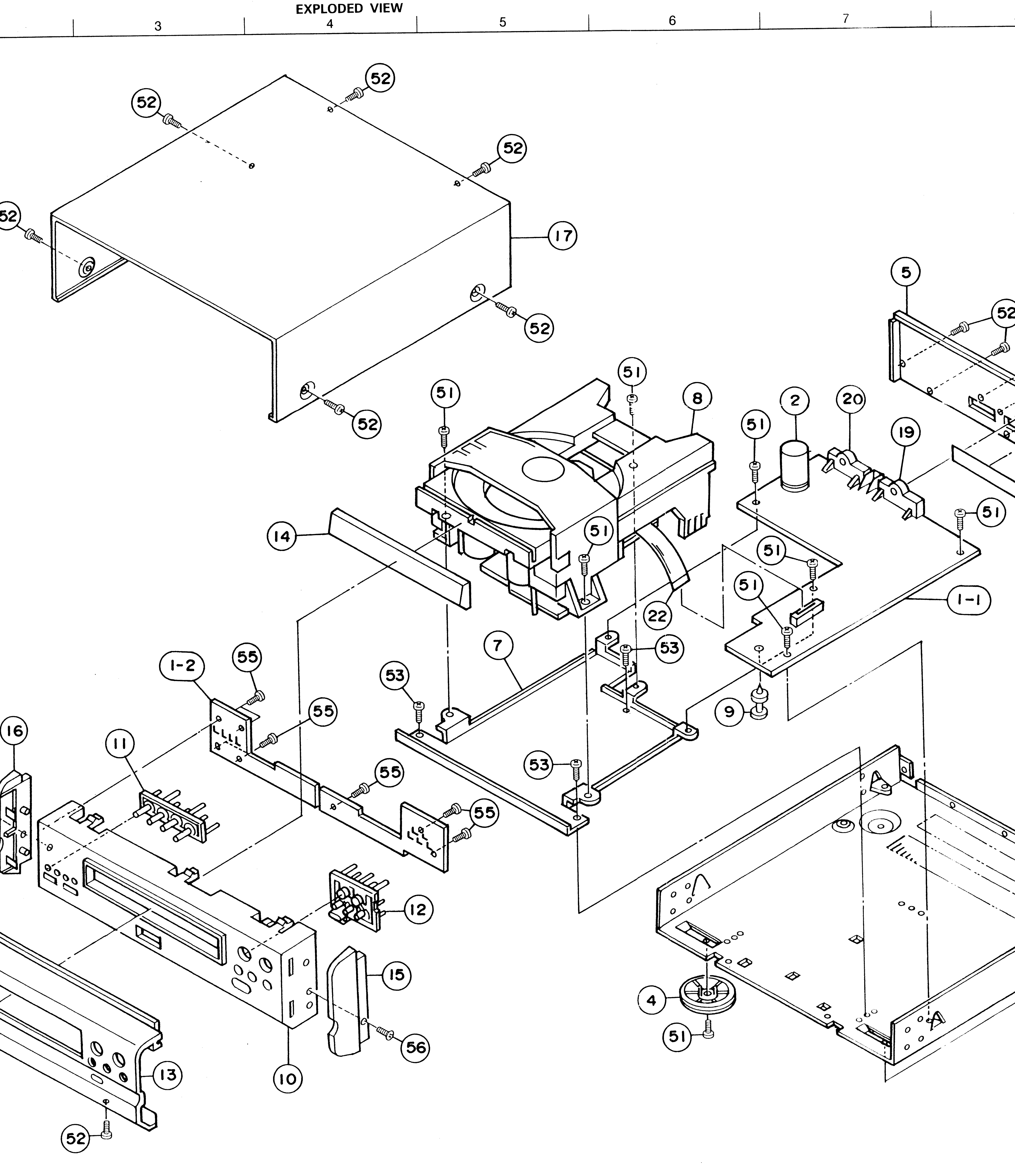


NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW


3
4
5
6
7
52
52
52
52
17
52
52
5
52
51
51
8
2
20
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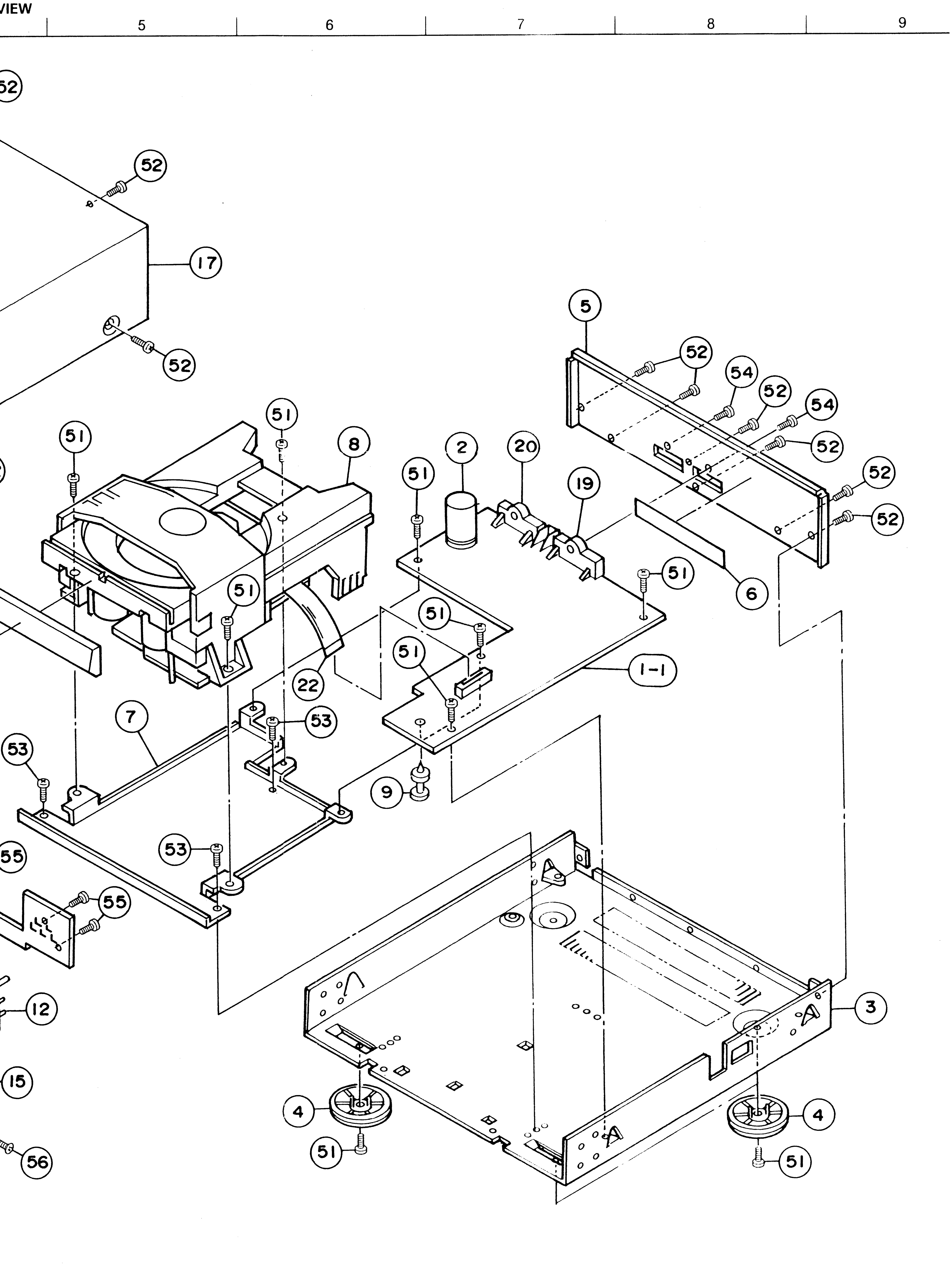
19
14
51
51
1-1
51
51
22
7
53
55
1-2
53
55
9
16
11
55
53
55
12
15
4
56
51
13
10
52

are not always in stock and possibly to take a long period of time for suppling, or in some case
ed.
indicate "1" and "I" (i) to avoid mis-supplying.
s part number can not be supplied.
★" is not illustrated in the exploded view.

▩ have critical characteristics.
mmended by the manufacturer.

VIEW


5
6
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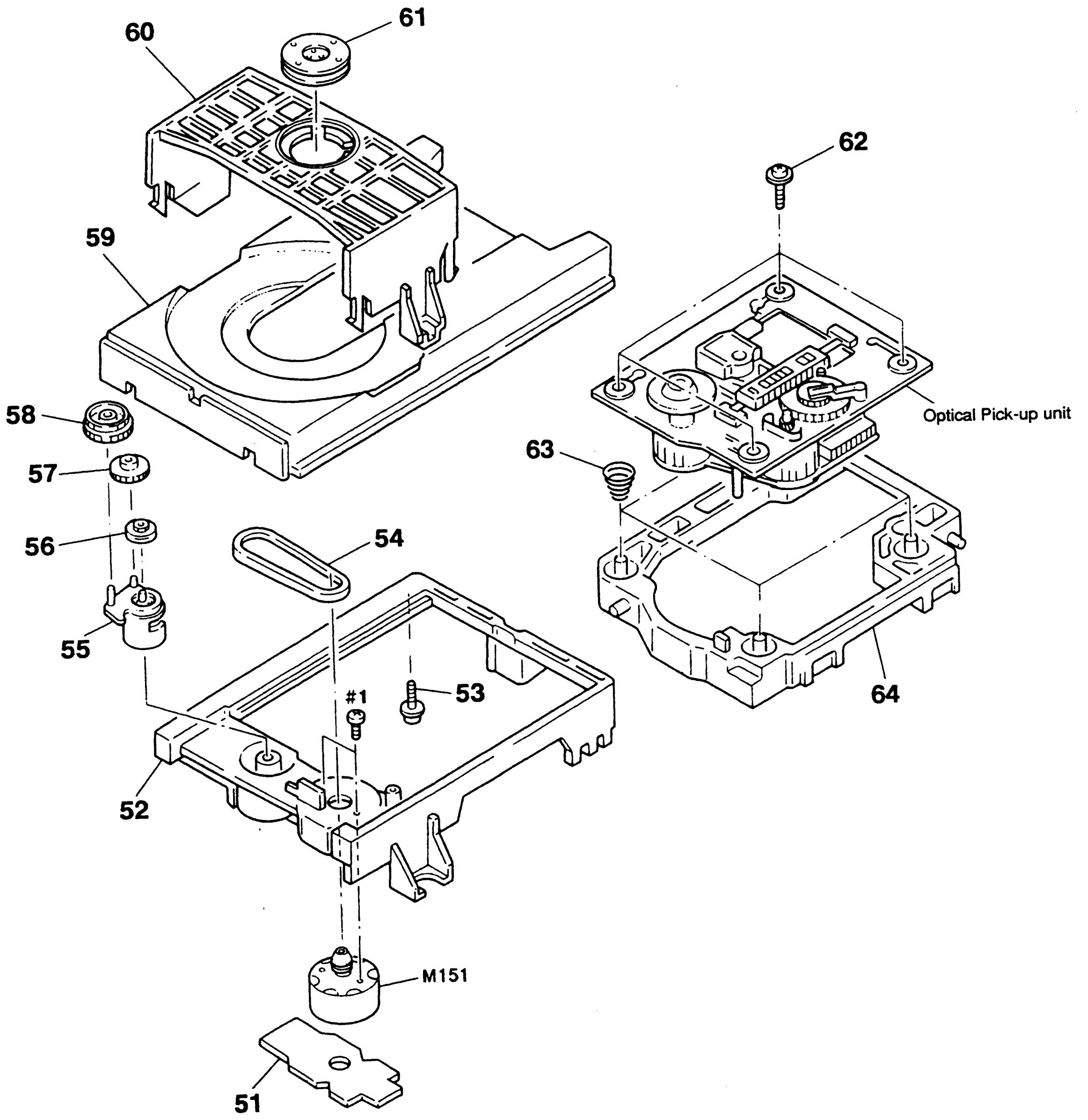
52
52
17
52
5
52
54
52
54
52
52
52
51
51
8
2
20
19
51
51
6
51
51
1-1
22
7
53
53
9
53
55
55
12
3
15
4
4
51
51
56

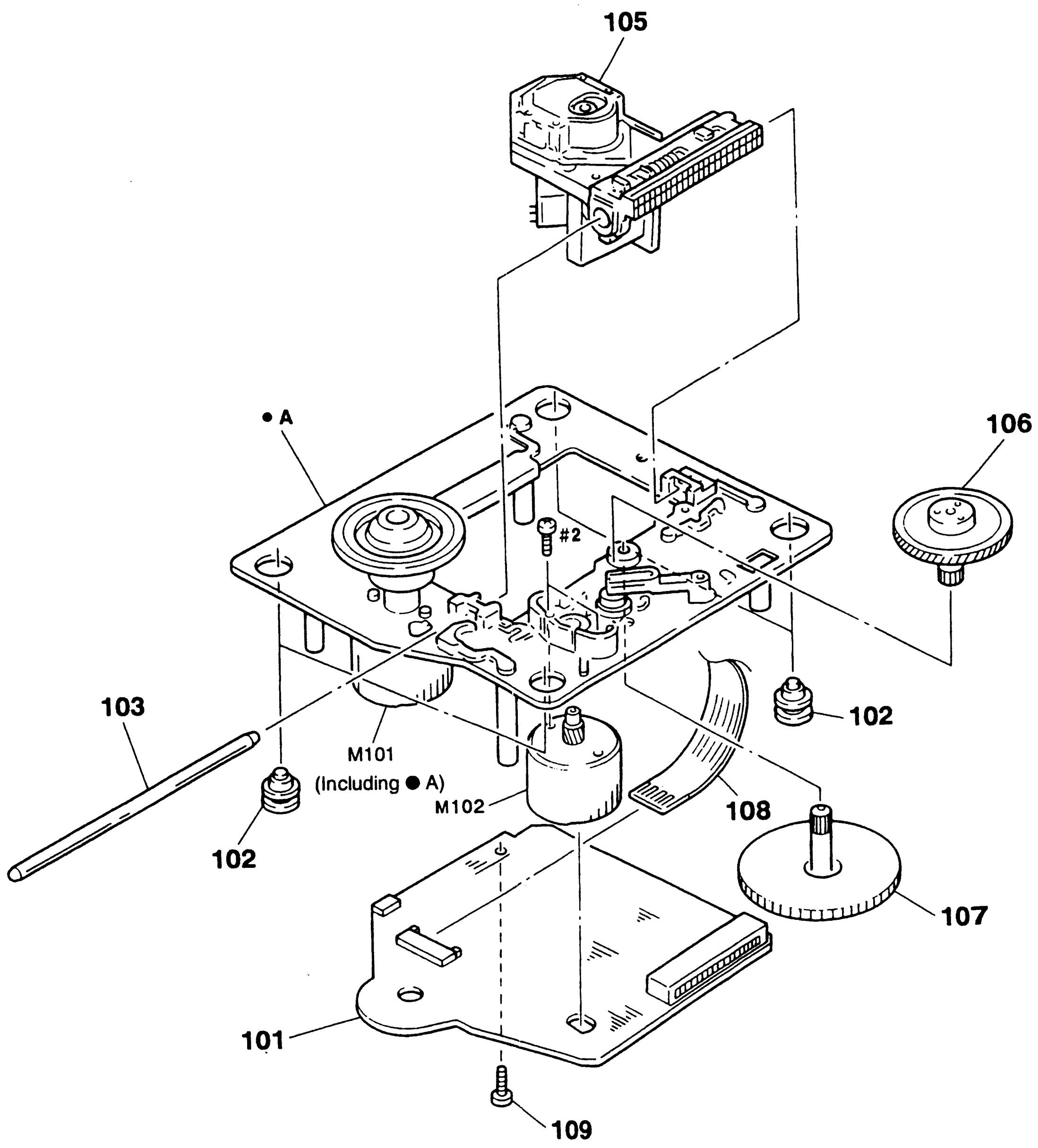
some case

PARTS LIST OF CD MECHANISM UNIT

MD UNIT


61
60
62
59
58
57
56
55
54
53
#1
52
63
Optical Pick-up unit
64
M151
51

OPTICAL PICK-UP UNIT


105
● A
106
#2
103
M101
(Including ● A)
M102
102
102
108
107
101
109

PARTS LIST OF CD MECHANISM UNIT

Ref No.	Part No.	Part Name	Remarks
51	S16 4572 111	Loading P.W.B. Unit Ass'y	See page 28, 29
52	S49 3311 101	Chassis(MD)	
53	S49 1758 321	Yoke Bracket	
54	S49 2764 901	Belt	
55	S49 3310 901	Cam	
56	S49 2765 101	Pulley(S)	
57	S49 2762 801	Gear(C)	
58	S49 3310 701	Gear(PL)	
59	S49 3311 201	Disk Table	
60	S49 3311 001	Holder(MG)	
61	S14 5253 811	Magnet	
62	S49 3313 401	Screw	
63	S49 4850 301	Spring(BU)	
64	S49 3312 901	Holder(BU)	
M151	SA4 6043 63A	Motor(L)Ass'y	
#1	471 3201 024	2.6×4 CBS	

PARTS LIST OF OPTICAL PICK-UP UNIT

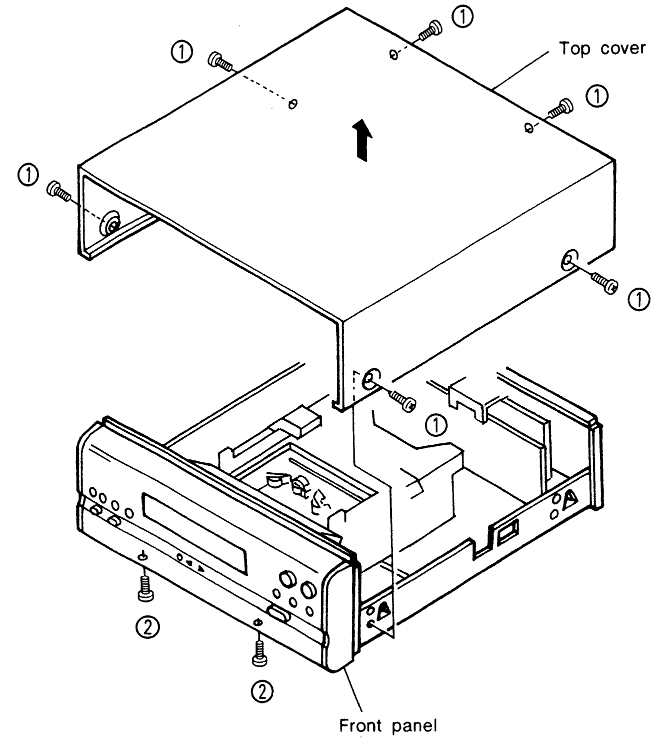
Ref No.	Part No.	Part Name	Remarks
◉ 101	SA4 6494 32A	CD Mechanism P.W.B. Unit Ass'y	See page 28, 29
102	S49 3312 601	Insulator Rubber	
103	S49 1756 501	Sled Shaft	
105	499 0191 009	Optical PU KSS240A	
106	S49 1756 701	Gear(M)	
107	S49 1756 401	Gear(P)	
108	S15 7500 111	Flat Cable	
M101	SX4 9175 233	Motor(Spindle)Ass'y	
M102	SX4 9175 041	Motor(Sled)Ass'y	
109	S49 5162 001	Screw	
#2	471 1810 019	2×3 CPS	

DISASSEMBLY PROCEDURES
(Follow these procedures in reverse order to reassemble.)

1. Removing the top cover and front panel

① Remove the six screws which fasten the top cover.

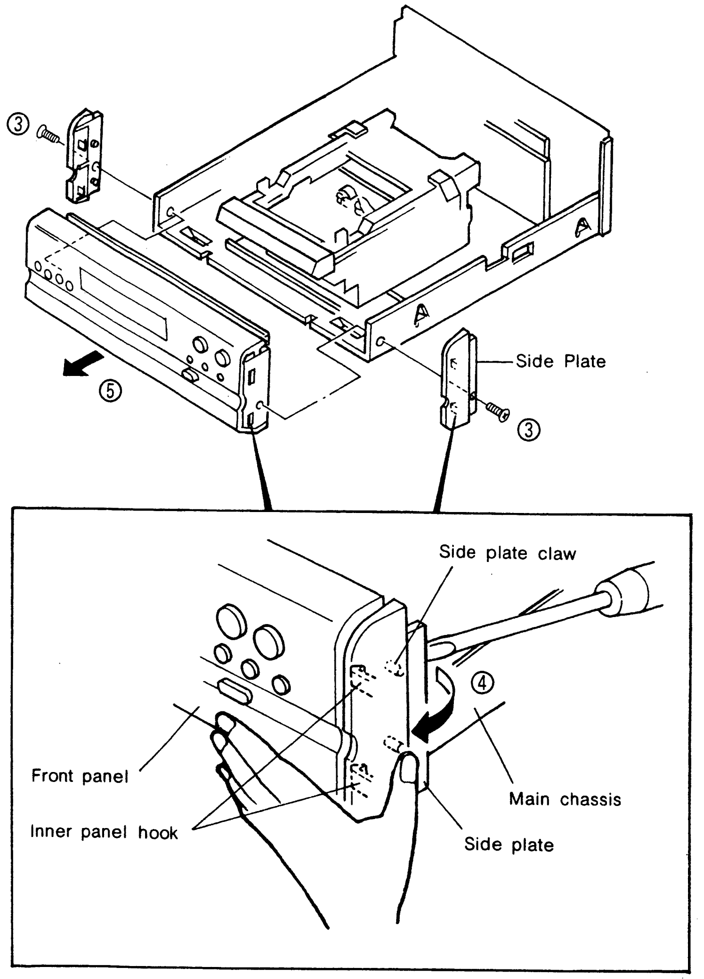
② Removed the two screws of the bottom side which fasten the front panel.


①
①
①
①
①
①
Top cover
②
②
Front panel

③ Remove the two screws which fasten the side plate.

④ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver).
Push out the side plate in the direction of the arrow and remove from the hooks of the inner panel.
Using the same method for the left side, remove the side plate.

⑤ Remove the front panel in the direction of the arrow.


③
⑤
Side Plate
③
Side plate claw
④
Front panel
Inner panel hook
Main chassis
Side plate

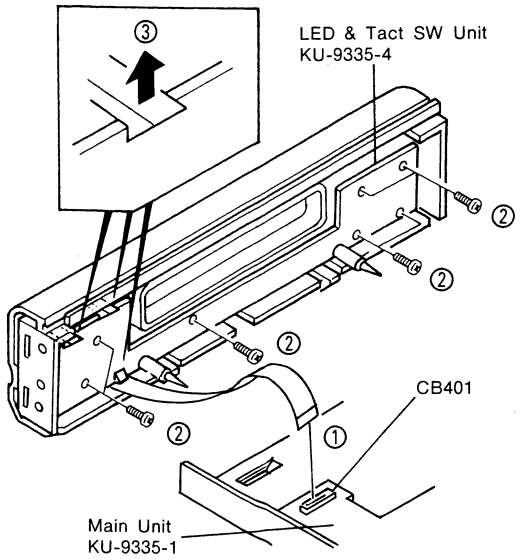
2. Removing the printed wiring units

LED & Tact SW Unit KU-9335-4

① Disconnect connector CB401(15P) which is attached to the main unit.

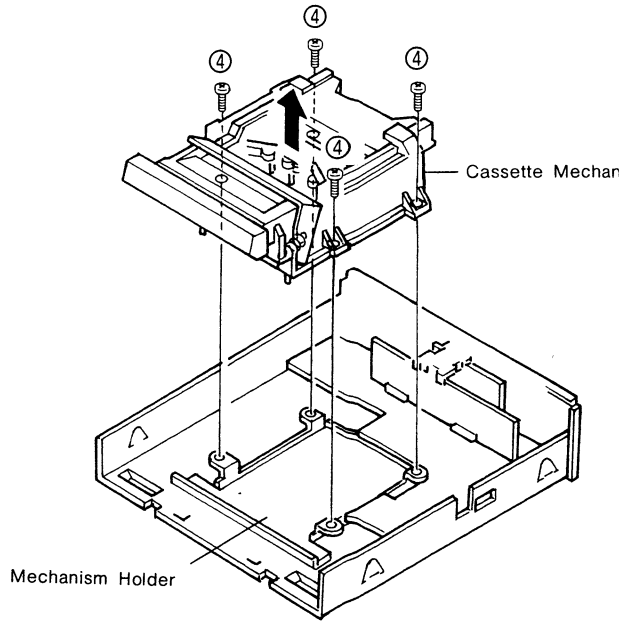
② Remove the seven screws which are attached to the control unit.

③ Detach the inner panel hook's catch in the direction of the arrow.

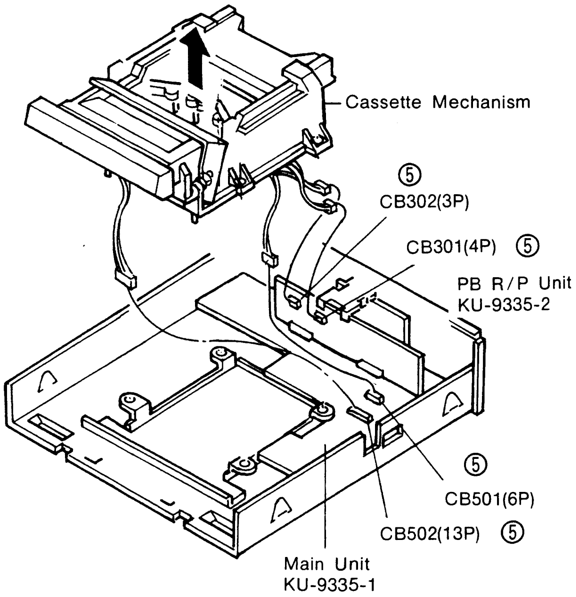

③
LED & Tact SW Unit
KU-9335-4
②
②
②
②
CB401
①
Main Unit
KU-9335-1

3. Removing the Cassette Mechanism

④ Removing the four screws which fasten the cassette mechanism unit.


④
④
④
④
Cassette Mechan
Mechanism Holder

⑤ Disconnect connectors CB301(4P), CB302(3P), CB501(6P) and CB502(13P) which are attached to the PB R/P unit and the main unit.

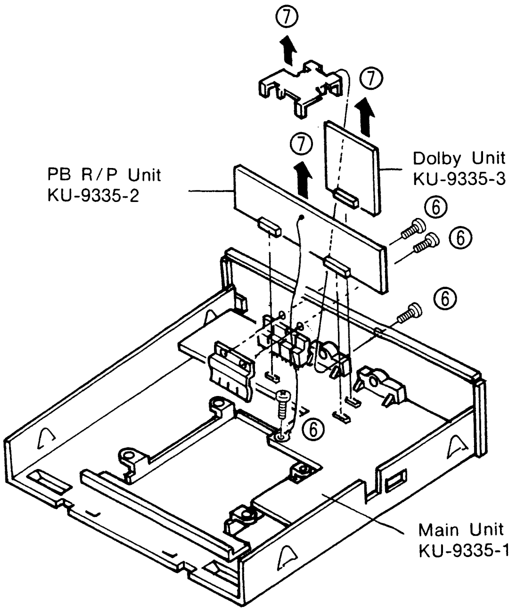

Cassette Mechanism
⑤
CB302(3P)
CB301(4P) ⑤
PB R/P Unit
KU-9335-2
⑤
CB501(6P)
CB502(13P) ⑤
Main Unit
KU-9335-1

REC/PB Unit (KU-9335-2)

Dolby Unit (KU-9335-3)

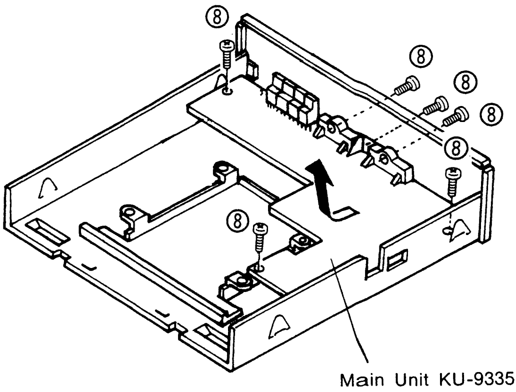
⑥ Remove the four screw of the mounting fitting of the board which is attached to the rear panel.

⑦ Remove the RB R/P unit and the Dolby unit.


⑦
⑦
⑦
PB R/P Unit
KU-9335-2
Dolby Unit
KU-9335-3
⑥
⑥
⑥
⑥
Main Unit
KU-9335-1

Main Unit (KU-9335-1)

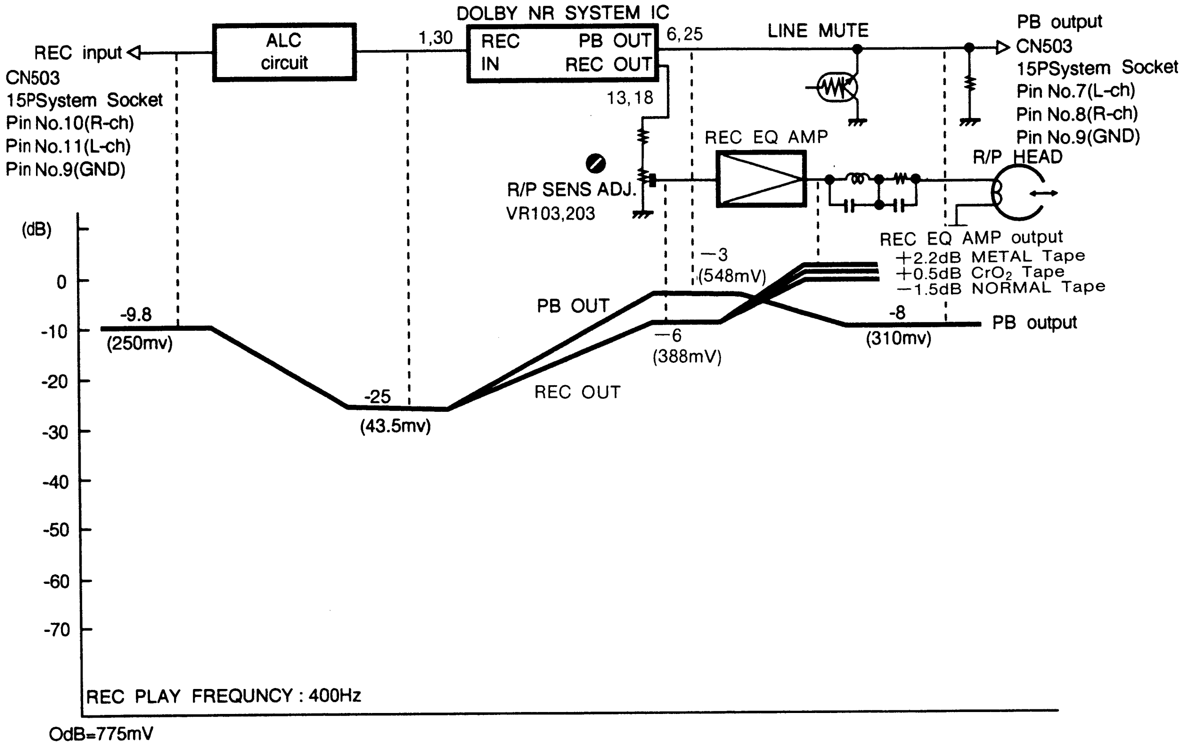
⑧ Remove the six screws which fasten the main unit and remove the board in the direction of the arrow.


⑧
⑧
⑧
⑧
⑧
⑧
Main Unit KU-9335-1

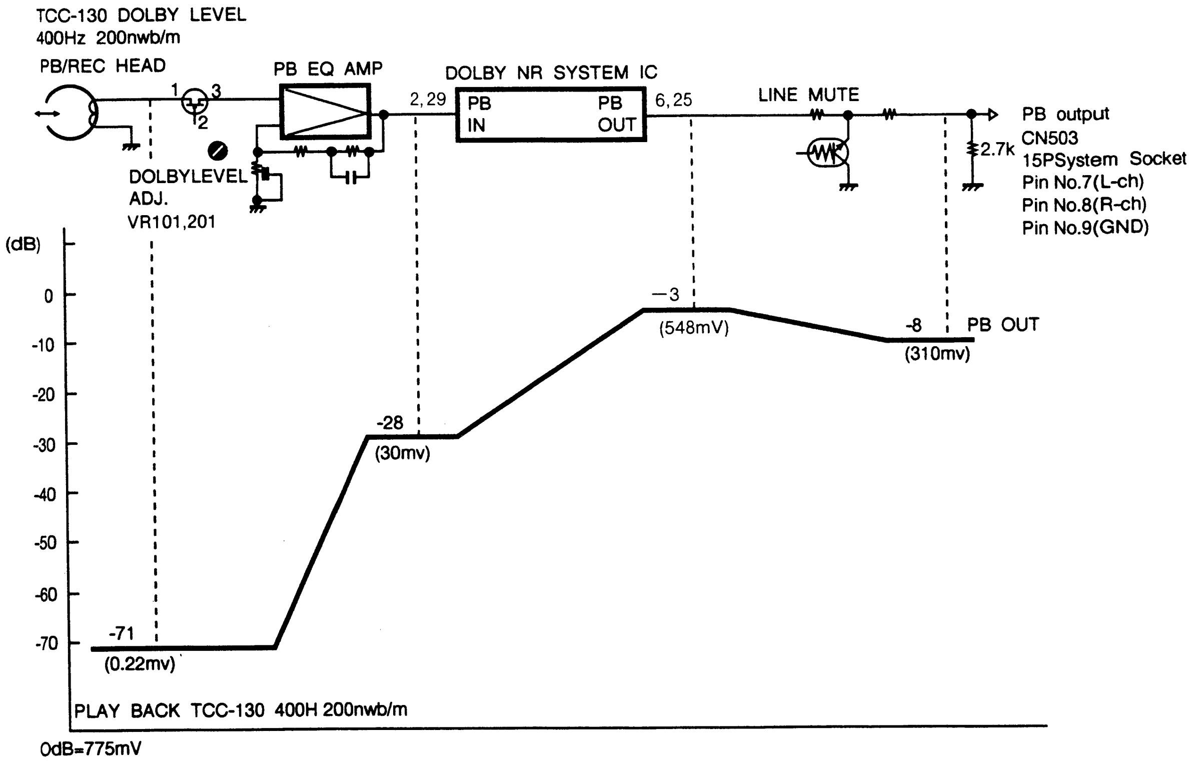
CASSETTE DECK SECTION

LEVEL DIAGRAM

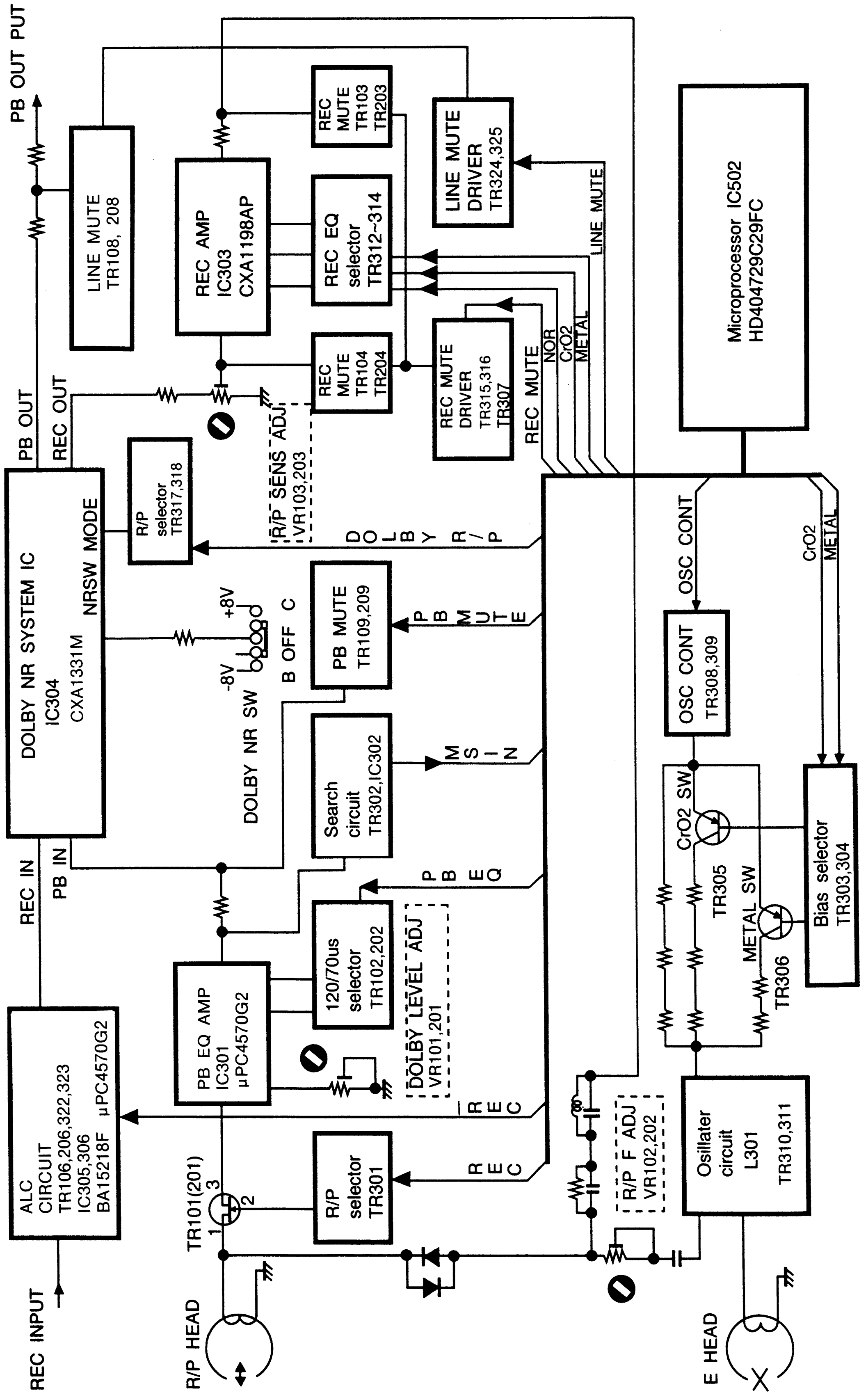
(Recording)


REC input
CN503
15PSystem Socket
Pin No.10(R-ch)
Pin No.11(L-ch)
Pin No.9(GND)
ALC circuit
1,30
DOLBY NR SYSTEM IC
REC IN
PB OUT
REC OUT
6,25
13,18
LINE MUTE
PB output
CN503
15PSystem Socket
Pin No.7(L-ch)
Pin No.8(R-ch)
Pin No.9(GND)
R/P HEAD
REC EQ AMP
R/P SENS ADJ.
VR103,203
REC EQ AMP output
+2.2dB METAL Tape
+0.5dB CrO$_2$ Tape
−1.5dB NORMAL Tape
(dB)
0
-10
-20
-30
-40
-50
-60
-70
-9.8
(250mv)
-25
(43.5mv)
PB OUT
REC OUT
−3
(548mV)
−6
(388mV)
-8
(310mv)
PB output
REC PLAY FREQUNCY : 400Hz
OdB=775mV

(Playback)


TCC-130 DOLBY LEVEL
400Hz 200nwb/m
PB/REC HEAD
1
3
2
PB EQ AMP
DOLBYLEVEL ADJ.
VR101,201
2,29
DOLBY NR SYSTEM IC
PB IN
PB OUT
6,25
LINE MUTE
2.7k
PB output
CN503
15PSystem Socket
Pin No.7(L-ch)
Pin No.8(R-ch)
Pin No.9(GND)
(dB)
0
-10
-20
-30
-40
-50
-60
-70
-71
(0.22mv)
-28
(30mv)
−3
(548mV)
-8
(310mv)
PB OUT
PLAY BACK TCC-130 400H 200nwb/m
OdB=775mV

BLOCK DIAGRAM

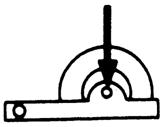

PB OUT PUT
LINE MUTE TR108, 208
REC AMP IC303 CXA1198AP
REC MUTE TR103 TR203
REC EQ selector TR312~314
LINE MUTE DRIVER TR324,325
LINE MUTE
REC MUTE TR104 TR204
REC MUTE DRIVER TR315,316 TR307
REC MUTE
NOR
CrO2
METAL
Microprocessor IC502 HD404729C29FC
PB OUT
REC OUT
R/P SENS ADJ VR103,203
R/P selector TR317,318
DOLBY NR SYSTEM IC IC304 CXA1331M
NRSW MODE
DOLBY R/P
+8V
-8V
B OFF C
DOLBY NR SW
PB MUTE TR109,209
PB MUTE
OSC CONT
OSC CONT TR308,309
CrO2
METAL
Search circuit TR302,IC302
MSIN
CrO2 SW
TR305
METAL SW
TR306
Bias selector TR303,304
REC IN
PB IN
PB EQ
120/70us selector TR102,202
DOLBY LEVEL ADJ VR101,201
PB EQ AMP IC301 μPC4570G2
REC
ALC CIRCUIT TR106,206,322,323 IC305,306 BA15218F μPC4570G2
R/P F ADJ VR102,202
Osillater circuit L301 TR310,311
R/P selector TR301
REC
TR101(201)
1
2
3
REC INPUT
R/P HEAD
E HEAD

CASSETTE DECK SECTION

ADJUSTMENT

• MECHANISM MEASUREMENTS

Measurement item	Standard value	Remarks
Winding torque (PLAY)	30~60 gcm	SONY TW-2111 for forward, TW-2121 for reverse
Fast-forward and rewind torque	70~120 gem	SONY TE-2231
Back tendion torque	2~6 gcm	SONY TW-2111 for forward, TW-2121 for reverse
Pinch roller pressure	280 ± 42 g	See diagram ar right
Fast-forward and rewind time	100 ± 15 sec	C-60



With the deck in the play mode. apply force with the tension gauge in the direction of the arrow and read the value at which the pinch roller stops rotating.

• ELECTRICAL ADJUSTMENTS (UDRA-77 is required for the adjustment of this unit. UCD-77 is not required.)

• Preparations Before Adjustments

1. Measuring Instruments Necessary for Adjustments

- Screwdriver: Small flat-bladed screwdriver for variable resistors
- Low frequency oscillator
- Attenuator
- V.T.V.M.
- Oscilloscope
- Frequency counter
- Test tapes [A-BEX TCC-111, TCC-153, TCC-130, TCC-203B]

• Adjustment notes

① Before adjusting, wipe the surface of the heads, the capstans, and the pinch rollers with a piece of gauze moistened with alcohol.

② Demagnetize the playback, recording, and erasure heads with a head eraser.

③ Complentely demagnetize the adjustment screwdriver.

④ Unless otherwise specified, set the switches at the following positions and use the AUX/DAT PB Terminal IN jacks for the input. For the output use test point Connector Base TP301 on the KU-9335-3 Dolby Unit.

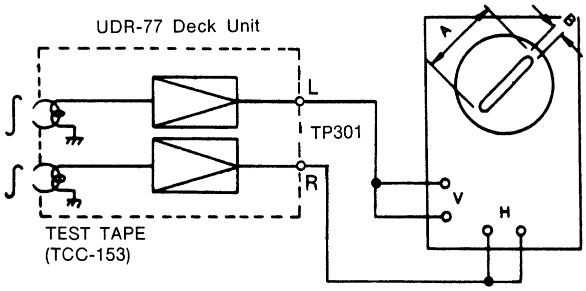
DOLBY NR SW: OFF

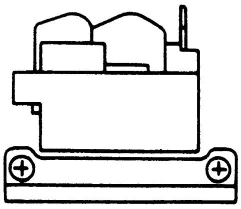
2. Play back adjustments

2-1 Azimuth adjustment

Play back the (A-BEX TCC-153) test tape and turn the azimuth adjustment screw to yield maximum values for the left and tight channels.

Lock the screw.



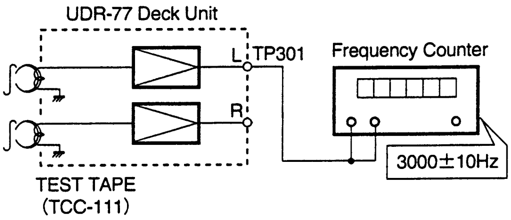


2-2 Tape speed check and adjustment

- **Connect the frequency counter to test point TP301.**

  Play back the test tape (TCC-111) on deck and once tape transport has stabilized, adjust normal-speed-adjustment variable resistor (motor Variable Resistor) to yield 3,000 Hz ±10 Hz

NOTE: Use the central portion of the test tape: not the beginning or end of the winding.



2-3 Playback level check and adjustment

Play a Dolby reference level tape (A-BEX TCC-130) and check that the voltage of the left and right monitor outputs of TP301 on the KU-9335-3 Unit is within 548 mV ±1 dB.

NOTE: For anything other than the above, the playback level must be adjusted.

- Adjust: VR101 (Left channel), and VR201 (right channel)

3. Recording adjustments

3-1 Overall frequency response adjustment for recording and playback

Load blank A-BEX TCC-203B tape for adjustment purposes and record and play it back, adjusting the input attenuators of the 1 kHz and 10 kHz signals to yield a left and right monitor output voltage of 54.8 mV at TP301 on the KU-9335-3 Dolby Unit. Adjust so that the 10 kHz level is about +0 dB with respect to 1 kHz, and the overall reponse is within the range shown in the diagram below.

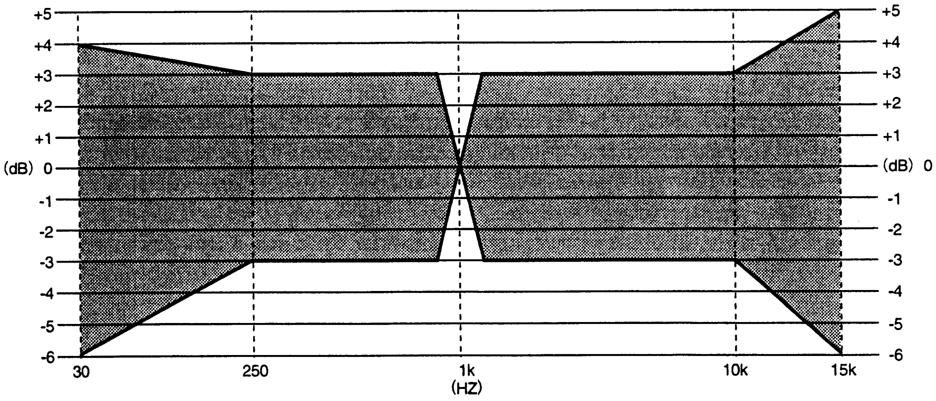
- If the 10 kHz output is larger than the 1 kHz output, turn VR102 (left channel) and VR202 (right channel) counterclockwise, and if it is smaller, turn these controls clockwise.

3.2 Recording level check and adjustment

Load a blank A-BEX TCC-203B tape for adjustment purposes and dheck that the voltmeter indication is within the 54.8 mV ±1 dB range when a 1 kHz signal is recorded and played back.

If it is not within this range, the recording level requires adjustment.

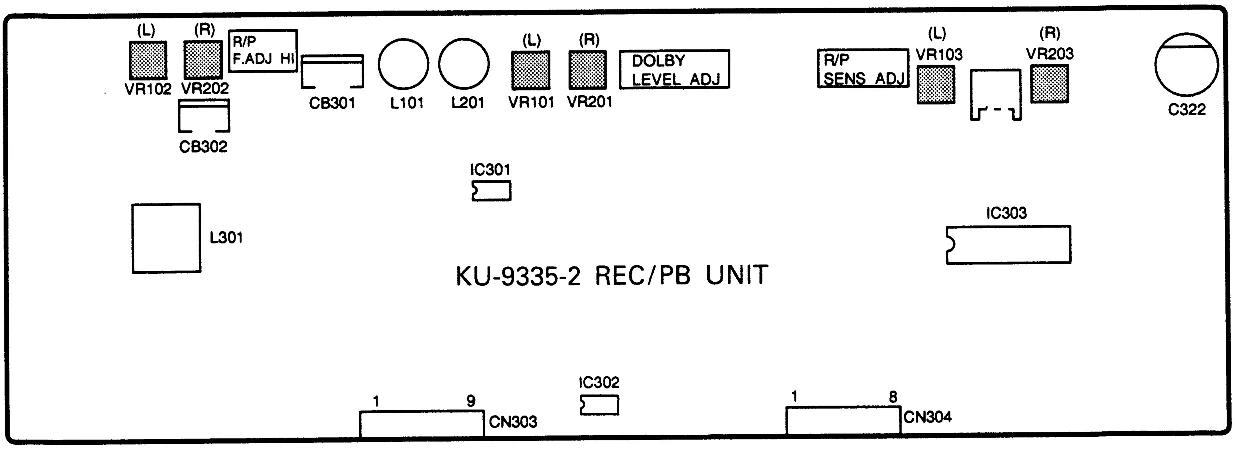
- If the level at the time of playing back the recording is higher than at the time of recording, turn VR103 (left channel) and VR203 (right channel) counterclockwise, and if lower, turn these controls clockwise.



TAPE: A-BEX TCC-203B
DOLBY NR: OFF
at TP301

CASSETTE DECK SECTION

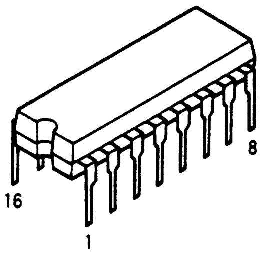
OUTLINE DIAGRAM OF ADJUSTMENT LOCATION
KU-9335-2 REC/PB UNIT ASS'Y (Component Side)

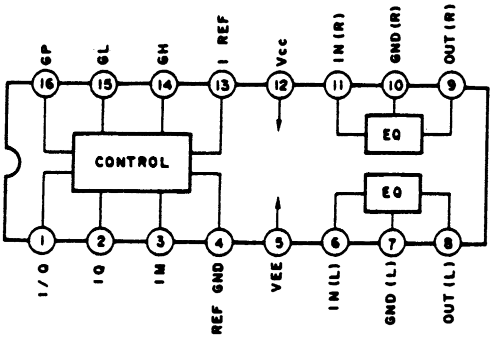

(L)
(R)
VR102
VR202
R/P F.ADJ HI
CB302
CB301
L101
L201
(L)
(R)
VR101
VR201
DOLBY LEVEL ADJ
R/P SENS ADJ
(L)
VR103
(R)
VR203
C322
IC301
IC303
L301
KU-9335-2 REC/PB UNIT
IC302
1
9
CN303
1
8
CN304

SEMICONDUCTORS

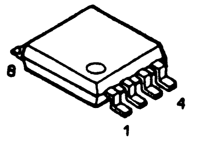
● IC's

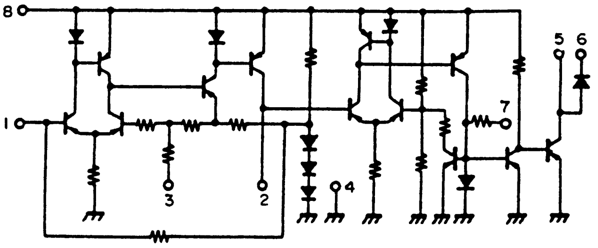
CXA1198AP (IC303)



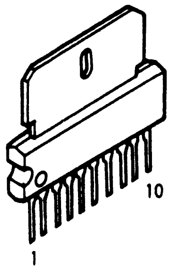

GP
GL
GH
I REF
Vcc
IN (R)
GND (R)
OUT (R)
16
15
14
13
12
11
10
9
CONTROL
EQ
EQ
1
2
3
4
5
6
7
8
I/O
IQ
IM
REF GND
VEE
IN (L)
GND (L)
OUT (L)

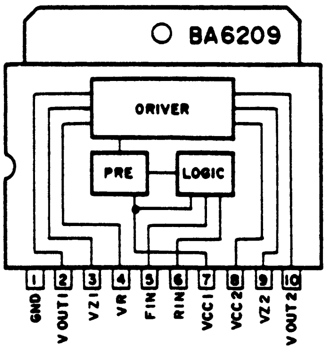
LA2000M (IC302)



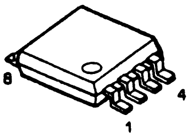


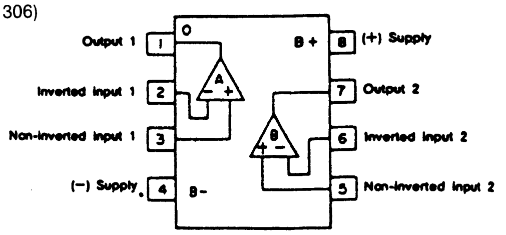
BA6209 (IC501)
Reversible motor driver
(2 circuits built in)



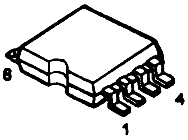

BA6209
DRIVER
PRE
LOGIC
1
2
3
4
5
6
7
8
9
10
GND
VOUT1
VZ1
VR
FIN
RIN
VCC1
VCC2
VZ2
VOUT2

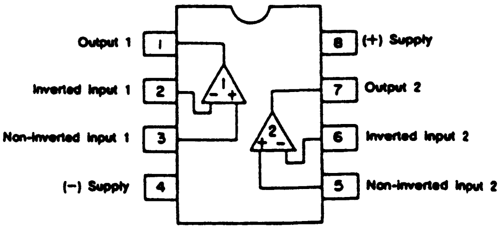
μPC4570G2 (IC301, 306)



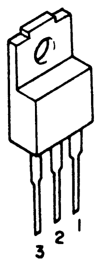

Output 1
Inverted input 1
Non-inverted input 1
(−) Supply
1
2
3
4
O
B+
B−
A
B
8
7
6
5
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2

BA15218F (IC305)



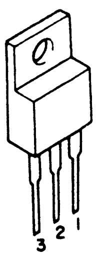

Output 1
Inverted input 1
Non-inverted input 1
(−) Supply
1
2
3
4
1
2
8
7
6
5
(+) Supply
Output 2
Inverted input 2
Non-inverted input 2

BA178M06 (S) (IC503) .. +6V
BA178M08 (S) (IC504) .. +8V
(Three-terminal positive
constant voltage power supply)



1: Output
2: GND
3: Input

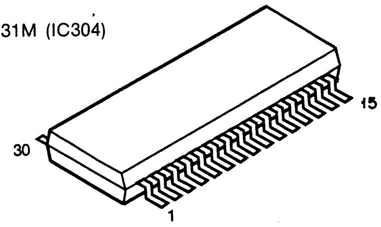
NJM79M08FA (IC505) .. −8V
(Three-terminal negative
constant voltage power supply)

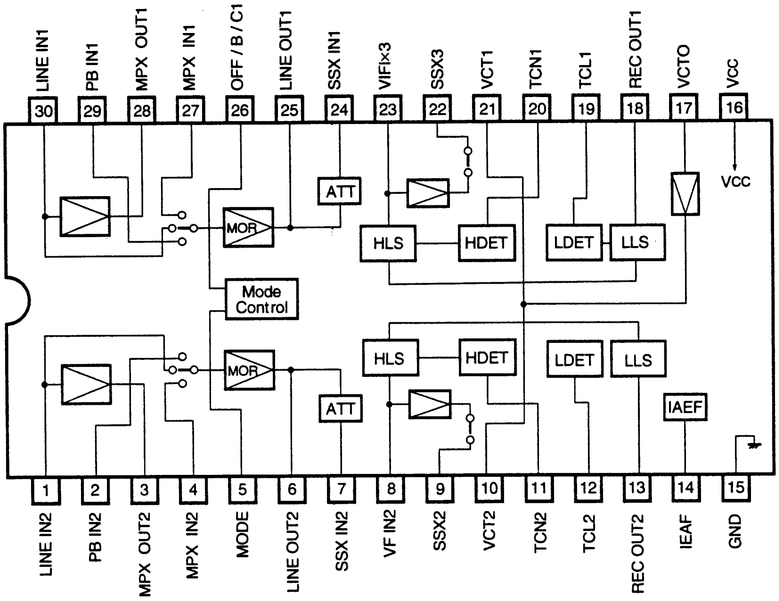


1: Output
2: Input
3: GND

CASSETTE DECK SECTION

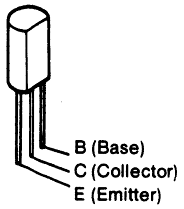
CXA1331M (IC304)



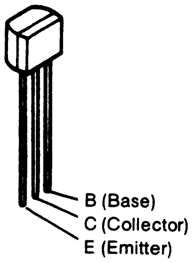

LINE IN1
PB IN1
MPX OUT1
MPX IN1
OFF / B / C1
LINE OUT1
SSX IN1
VIFl×3
SSX3
VCT1
TCN1
TCL1
REC OUT1
VCTO
VCC
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
VCC
ATT
MOR
HLS
HDET
LDET
LLS
Mode Control
HLS
HDET
LDET
LLS
MOR
ATT
IAEF
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
LINE IN2
PB IN2
MPX OUT2
MPX IN2
MODE
LINE OUT2
SSX IN2
VF IN2
SSX2
VCT2
TCN2
TCL2
REC OUT2
IEAF
GND

Transistors

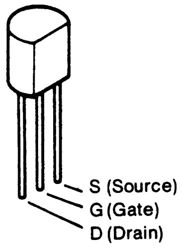
2SB562 (C)

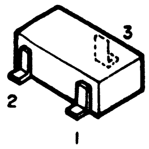

B (Base)
C (Collector)
E (Emitter)

2SA933S (S)


B (Base)
C (Collector)
E (Emitter)

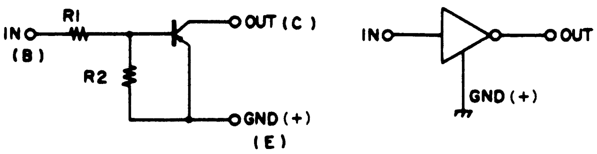
2SK373 (Y) (FET)


S (Source)
G (Gate)
D (Drain)



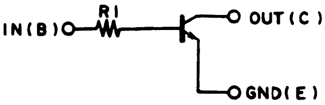
1 : GND / Emitter
2 : In / Base
3 : Out / Collector

PNP Type


IN
(B)
R1
R2
OUT (C)
GND (+)
(E)
IN
OUT
GND (+)

	R1	R2
DTA114EK	10k ohm	10k ohm
DTA144EK	47k ohm	47k ohm

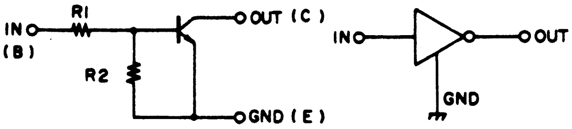
NPN Type


IN (B)
R1
OUT (C)
GND (E)

	R1
DTC114TK	10k ohm
DTC323TK	2.2k ohm

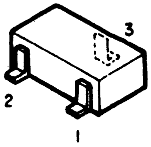
DTA144EK PNP type
DTA114EK
DTC114EK
DTC144EK NPN type
DTC114TK
DTC323TK

NPN Type


IN
(B)
R1
R2
OUT (C)
GND (E)
IN
OUT
GND

	R1	R2
DTC114EK	10k ohm	10k ohm
DTC144EK	47k ohm	47k ohm

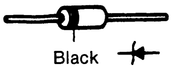
2SA1037K (S/R)
2SC2412K (S)



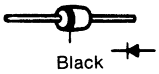
1 : GND / Emitter
2 : In / Base
3 : Out / Collector

Diodes

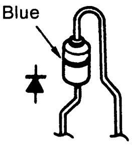
MTZJ5.6A
MTZJ7.5A
MTZJ7.5C
MTZJ9.1A



1SS252

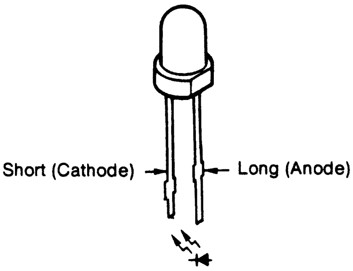


1SR35-200A



LED ASS'Y

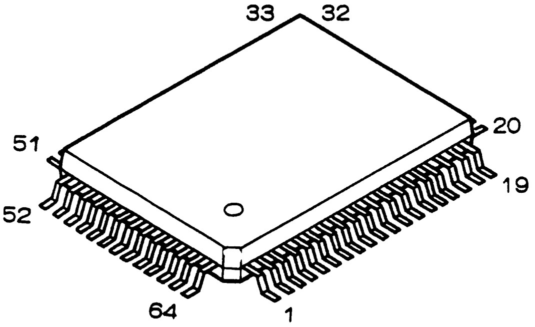
SEL-2410G (Green) (D401, 402)
SEL-2210R (Red) (D403)

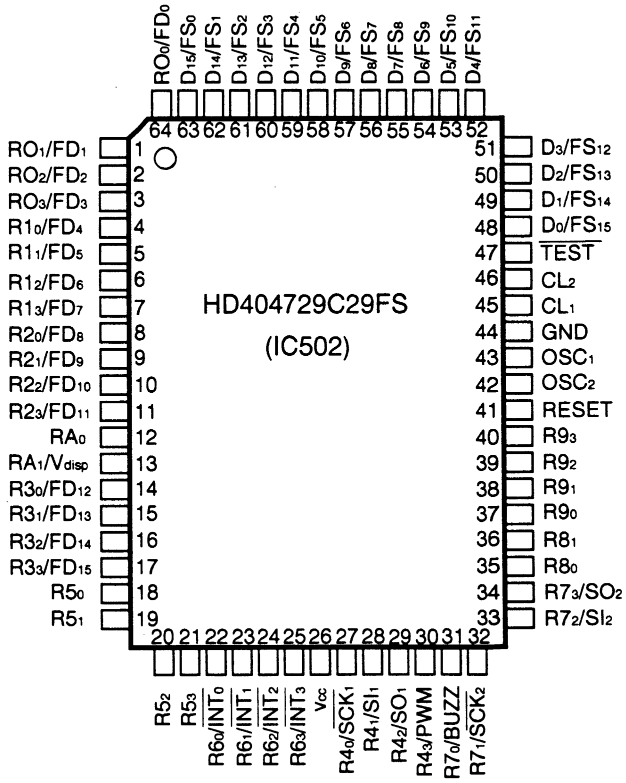

Short (Cathode)
Long (Anode)

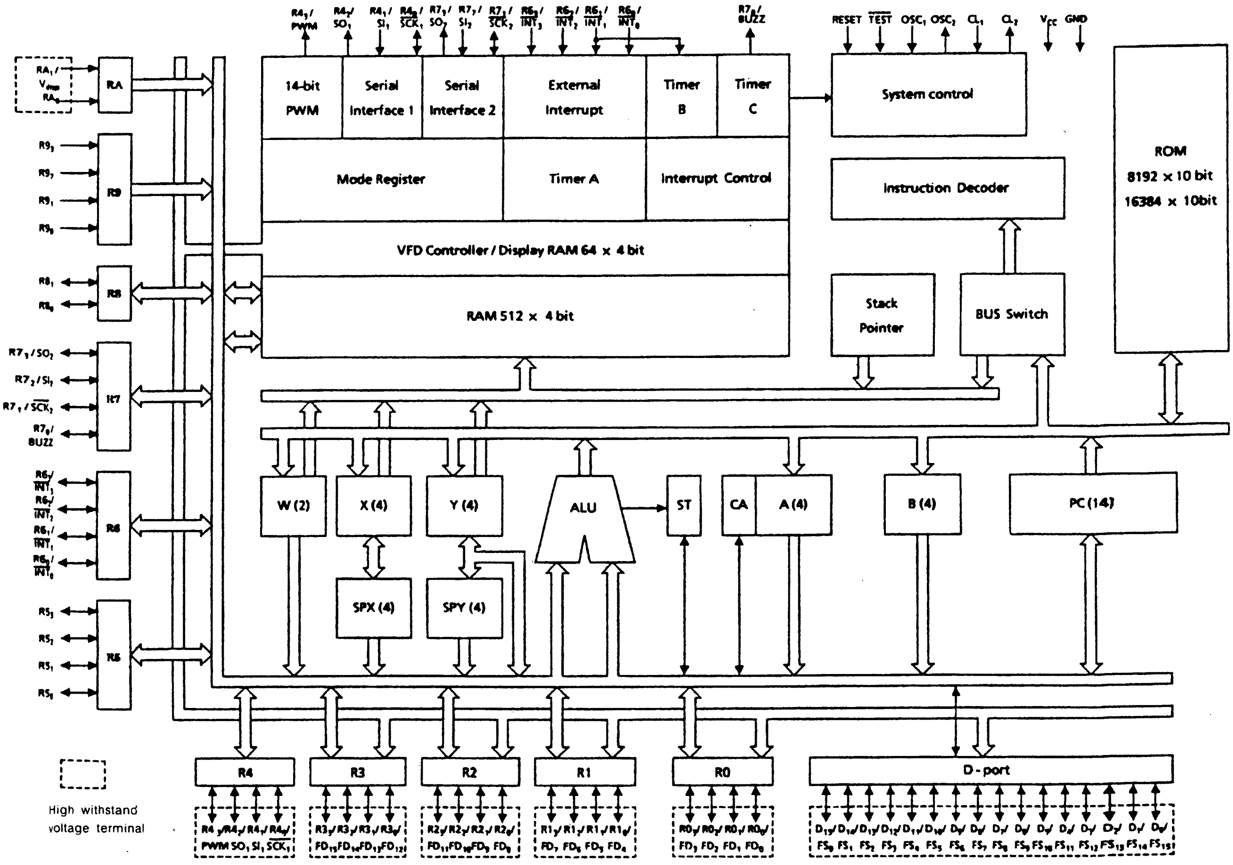
CASSETTE DECK SECTION

MICROPROCESSOR DOCUMENTATION

HD404729C29FS
(IC502) Part No. 262 1867 002


33
32
20
19
51
52
64
1


HD404729C29FS
(IC502)
1 RO1/FD1
2 RO2/FD2
3 RO3/FD3
4 R10/FD4
5 R11/FD5
6 R12/FD6
7 R13/FD7
8 R20/FD8
9 R21/FD9
10 R22/FD10
11 R23/FD11
12 RA0
13 RA1/Vdisp
14 R30/FD12
15 R31/FD13
16 R32/FD14
17 R33/FD15
18 R50
19 R51
20 R52
21 R53
22 R60/INT0
23 R61/INT1
24 R62/INT2
25 R63/INT3
26 Vcc
27 R40/SCK1
28 R41/SI1
29 R42/SO1
30 R43/PWM
31 R70/BUZZ
32 R71/SCK2
33 R72/SI2
34 R73/SO2
35 R80
36 R81
37 R90
38 R91
39 R92
40 R93
41 RESET
42 OSC2
43 OSC1
44 GND
45 CL1
46 CL2
47 TEST
48 D0/FS15
49 D1/FS14
50 D2/FS13
51 D3/FS12
52 D4/FS11
53 D5/FS10
54 D6/FS9
55 D7/FS8
56 D8/FS7
57 D9/FS6
58 D10/FS5
59 D11/FS4
60 D12/FS3
61 D13/FS2
62 D14/FS1
63 D15/FS0
64 RO0/FD0


RA1/Vdisp
RA0
RA
R93
R92
R91
R90
R9
R81
R80
R8
R73/SO2
R72/SI2
R71/SCK2
R70/BUZZ
R7
R63/INT3
R62/INT2
R61/INT1
R60/INT0
R6
R53
R52
R51
R50
R5
R43/PWM
R42/SO1
R41/SI1
R40/SCK1
R73/SO2
R72/SI2
R71/SCK2
R63/INT3
R62/INT2
R61/INT1
R60/INT0
R70/BUZZ
14-bit PWM
Serial Interface 1
Serial Interface 2
External Interrupt
Timer B
Timer C
Mode Register
Timer A
Interrupt Control
VFD Controller / Display RAM 64 × 4 bit
RAM 512 × 4 bit
RESET
TEST
OSC1
OSC2
CL1
CL2
Vcc
GND
System control
Instruction Decoder
Stack Pointer
BUS Switch
ROM
8192 × 10 bit
16384 × 10bit
W (2)
X (4)
Y (4)
ALU
ST
CA
A (4)
B (4)
PC (14)
SPX (4)
SPY (4)
R4
R3
R2
R1
R0
D-port
R43/PWM R42/SO1 R41/SI1 R40/SCK1
R33/FD15 R32/FD14 R31/FD13 R30/FD12
R23/FD11 R22/FD10 R21/FD9 R20/FD8
R13/FD7 R12/FD6 R11/FD5 R10/FD4
RO3/FD3 RO2/FD2 RO1/FD1 RO0/FD0
D15/FS0 D14/FS1 D13/FS2 D12/FS3 D11/FS4 D10/FS5 D9/FS6 D8/FS7 D7/FS8 D6/FS9 D5/FS10 D4/FS11 D3/FS12 D2/FS13 D1/FS14 D0/FS15
High withstand voltage terminal

- **Pin Discription**

No.	Port Name	Function Name	Function
1	R01/FD1	CPM OUT	This pin drives the capstan motor of the mechanism. (Active high)
2	R02/FD2	$\overline{\text{REC MUTE OUT}}$	Mute output pin of the recording amplifier. (Active low)
3	R03/FD3	DOLBY R/P OUT	Output pin that switches the record/playback mode of the Dolby IC.
4	R10/FD4	OPEN OUT	Output pin used to open the loader of the mechanism. (Active high)
5	R11/FD5	CLOSE OUT	Output pin used to close the loader of the mechanism. (Active high)
6	R12/FD6	L.SPEED OUT	Open
7	R13/FD7	OFF ENA OUT	Open
8	R20/FD8	OSC CONT OUT	Output pin that controls the bias oscillation. (Active high)
9	R21/FD9	REC OUT	Record mode output pin; high level during the record mode.
10	R22/FD10	$\overline{\text{REC OUT}}$	Record out inverted output pin.
11	R23/FD11	PB EQ OUT	Output pin which switches the time constant of the playback amplifier. 120 μ = H, 70 μ = L
12	RA0	CrO_2 IN	Mechanism's tape type detection switch input pin.
13	RA1/Vdisp	METAL IN	Mechanism's tape type detection switch input pin.
14	R30/FD12	METAL OUT	Output pin that switches the recording equalizer and the bias to meta!. (Active high)
15	R31/FD13	CrO_2OUT	Output pin that switches the recording equalizer and the bias to chrome. (Active high)
16	R32/FD14	NORMAL OUT	Output pin that switches the recording equalizer and the bias to normal. (Active high)
17	R33/FD15	PB MUTE OUT	Mute output pin of the playback amplifier. (Active high)
18	R50	NC (OUT)	Open
19	R51	NC (OUT)	Open
20	R52	NC (OUT)	Open
21	R53	$\overline{\text{SERIAL SIG OUT}}$	Output pin used for serial communications. (Active low)
22	R60/INT0	$\overline{\text{SERIAL SIG IN}}$	Input pin used for serial communications. (Active low)
23	R61/INT1	STANDBY IN	This pin sets the microprocessor to the standby mode.
24	R62/INT2	ENA IN	Display data output enable input pin.
25	R63/INT3	$\overline{\text{MS IN}}$	Input pin for the intertrack detection signal from the IC used for intertrack detection. (Active low)
26	Vcc	Vcc	Power supply input pin.
27	R40/SCK1	CLOCK OUT	Clock pulse output pin used for display data transfer.
28	R41/SI1	NC (OUT)	Open
29	R42/S02	DATA OUT	Display data output pin.
30	R43/PWM	LINE MUTE OUT	Mute output pin of the playback output pin.
31	R70/BUZZ	NC (OUT)	Open
32	R71/SCK2	NC (OUT)	Open
33	R72/SI2	NC (OUT)	Open
34	R73/S02	NC (OUT)	Open
35	R80	NC (OUT)	Open
36	R81	NC (OUT)	Open
37	R90	KR0	Key and switch input pin.
38	R91	KR1	Key and switch input pin.
39	R92	KR2	Key and switch input pin.
40	R93	KR3	Key and switch input pin.
41	RESET	RESET IN	System reset input pin.
42	OSC2	OSC2	System clock oscillation pin. 4 MHz
43	OSC1	OSC1	System clock oscillation pin. 4 MHz
44	GND	GND	Ground pin.
45	CL1	CL1	Connect to ground.

CASSETTE DECK SECTION

No.	Port Name	Function Name	Function
46	CL2	CL2	Open
47	TEST	TEST	Connect to Vcc.
48	D0/FS15	KS0	Key strobe output pin.
49	D1/FS14	KS1	Key strobe output pin.
50	D2/FS13	KS2	Key strobe output pin.
51	D3/FS12	KS3	Key strobe output pin.
52	D4/FS11	KS4	Key strobe output pin.
53	D5/FS10	KS5	Key strobe output pin.
54	D6/FS9	KS6	Key strobe output pin.
55	D7/FS8	POWER ON OUT	Open
56	D8/FS7	REV LED OUT	REVERSE LED lighting output.
57	D9/FS6	FWD LED OUT	FORWARD LED lighting output.
58	D10/FS5	REC LED OUT	REC LED lighting output.
59	D11/FS4	NC (OUT)	Open
60	D12/FS3	NC (IN)	Connect to Vcc.
61	D13/FS2	NC (OUT)	Open
62	D14/FS1	REEL S IN	Reel pulse input pin of the supply side.
63	D15/FS0	REEL T IN	Reel pulse input pin of the take-up side.
64	R00/FD0	PLAY SOL OUT	Output pin that drives the solenoid of the mechanism.

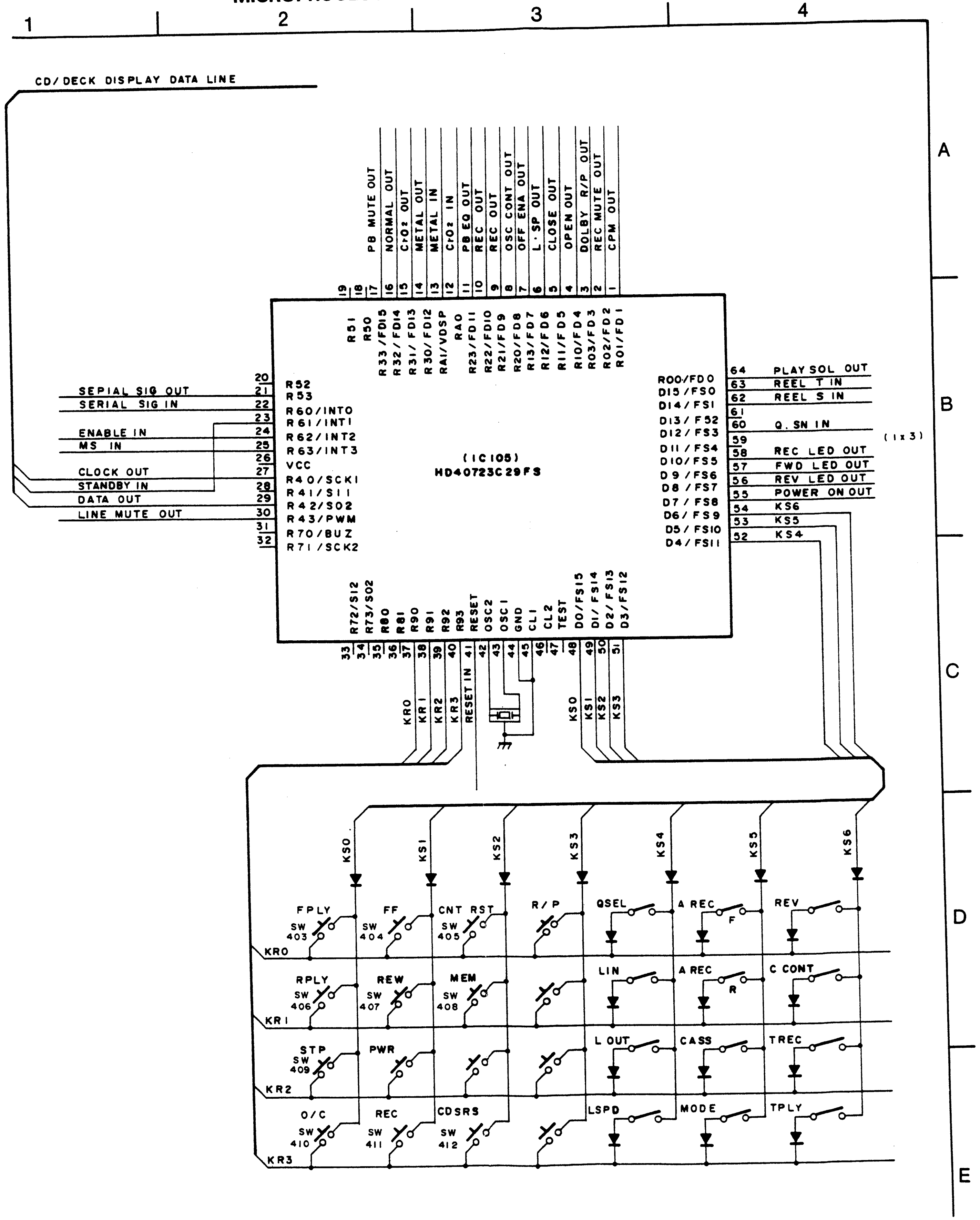
- **Button Input Description**

Item	Button Name	Description of Function
1	F. PLAY	Commands the forward direction play mode. Commands the cue/revue mode with one-touch play operations of PLAY + REW/FF, or FF/REW during the play mode.
2	R. PLAY	Commands the play mode of the reverse direction. The one-touch play operations of the cue/revue mode are the same as with F. PLAY.
3	F. F	Commands the tape to be wound quickly in the right direction.
4	REW	Commands the tape to be wound quickly in the left direction.
5	STOP	Commands the stop mode. When there has been input from this button, there will be a change to the stop mode from whichever mode is currnetly set.
6	OPEN/CLOSE	Commands the open/close mode of the cassette tray. The open/close mode is switched cyclicly with the input of this button. This is a toggle operation. When there is input from this button with the power off, the power is switched on and there is then a shift to the open mode.
7	REC/REC MUTE	Commands the record, record pause, and record muting modes. When there is button input in the stop mode, there will be a shift to the record pause mode. When there is button input in the record pause mode, there will be a shift to the record mute mode. When switched on simultaneously with PLAY, or when there is PLAY button input in the record pause mode, there will be a shift to the record mode. The conditions of the record mode must be satisfied.
8	COUNTER RESET	Resets the counter to "0000".
9	MEMORY STOP	Stops when the counter reaches "0000".
10	CD SRS	Commands the CS SRS operation.

- **Switch Input Description**

Item	Switch Name	Description of Function
1	REVERSE	Commands the one side or two side recording/playback modes and the endless playback mode.
2	DOLBY NR	Commands the on/off switching of the Dolby (B/C) noise reduction circuit.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM


1
2
3
4
A
B
C
D
E
CD/DECK DISPLAY DATA LINE
PB MUTE OUT
NORMAL OUT
CrO2 OUT
METAL OUT
METAL IN
CrO2 IN
PB EQ OUT
REC OUT
REC OUT
OSC CONT OUT
OFF ENA OUT
L·SP OUT
CLOSE OUT
OPEN OUT
DOLBY R/P OUT
REC MUTE OUT
CPM OUT
(IC105)
HD40723C29FS
R51
R50
R33/FD15
R32/FD14
R31/FD13
R30/FD12
RA1/VDSP
RA0
R23/FD11
R22/FD10
R21/FD9
R20/FD8
R13/FD7
R12/FD6
R11/FD5
R10/FD4
R03/FD3
R02/FD2
R01/FD1
R52
R53
R60/INT0
R61/INT1
R62/INT2
R63/INT3
VCC
R40/SCK1
R41/SI1
R42/SO2
R43/PWM
R70/BUZ
R71/SCK2
SEPIAL SIG OUT
SERIAL SIG IN
ENABLE IN
MS IN
CLOCK OUT
STANDBY IN
DATA OUT
LINE MUTE OUT
R00/FD0
D15/FS0
D14/FS1
D13/FS2
D12/FS3
D11/FS4
D10/FS5
D9/FS6
D8/FS7
D7/FS8
D6/FS9
D5/FS10
D4/FS11
PLAY SOL OUT
REEL T IN
REEL S IN
Q. SN IN
(1x3)
REC LED OUT
FWD LED OUT
REV LED OUT
POWER ON OUT
KS6
KS5
KS4
R72/SI2
R73/SO2
R80
R81
R90
R91
R92
R93
RESET
OSC2
OSC1
GND
CL1
CL2
TEST
D0/FS15
D1/FS14
D2/FS13
D3/FS12
KR0
KR1
KR2
KR3
RESET IN
KS0
KS1
KS2
KS3
FPLY
SW 403
FF
SW 404
CNT RST
SW 405
R/P
QSEL
A REC
F
REV
RPLY
SW 406
REW
SW 407
MEM
SW 408
LIN
A REC
R
C CONT
STP
SW 409
PWR
L OUT
CASS
TREC
O/C
SW 410
REC
SW 411
CDSRS
SW 412
LSPD
MODE
TPLY

CASSETTE DECK SECTION

PRINTED WIRING BOARD

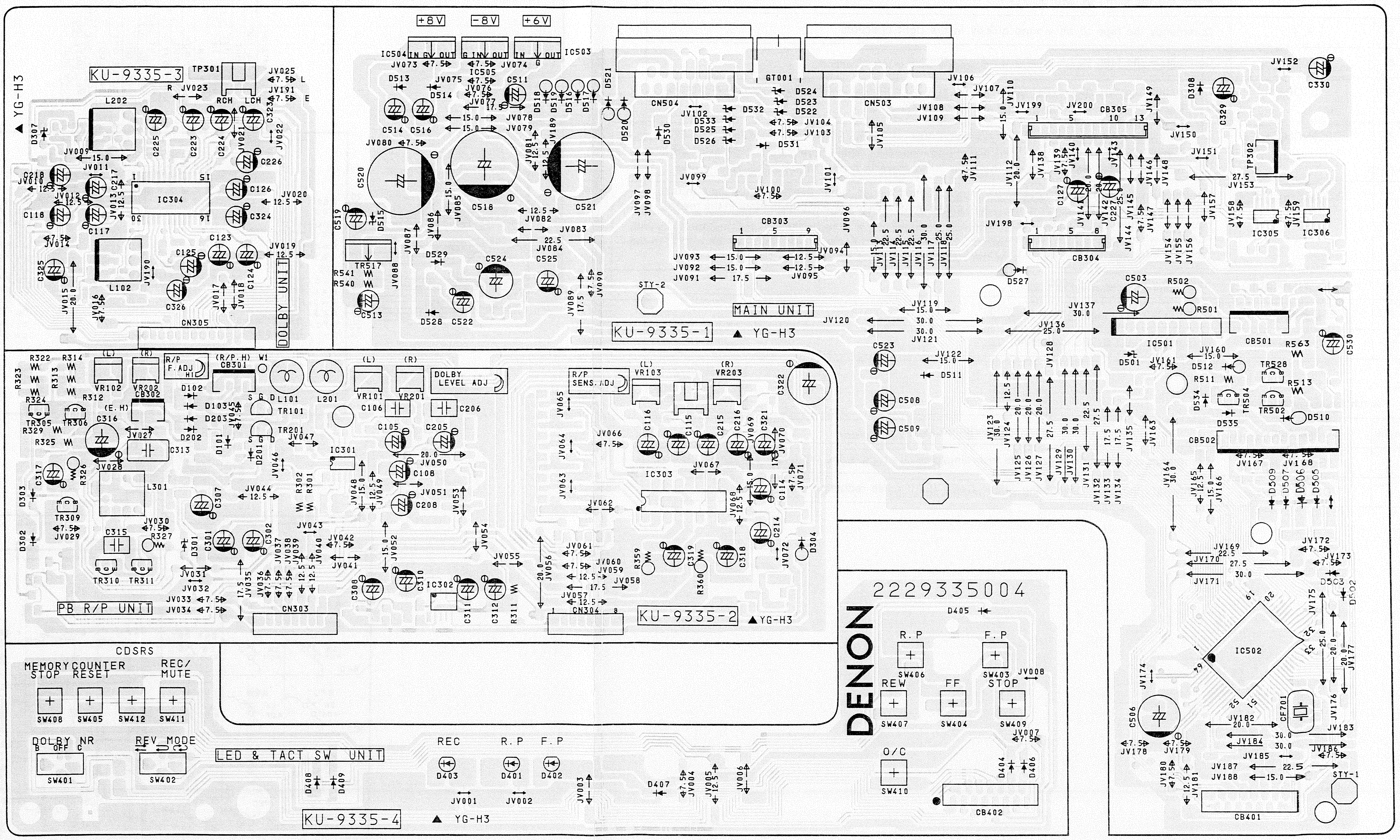
1 2 3 4 5 6 7 8

KU-9335 DECK UNIT ASS'Y

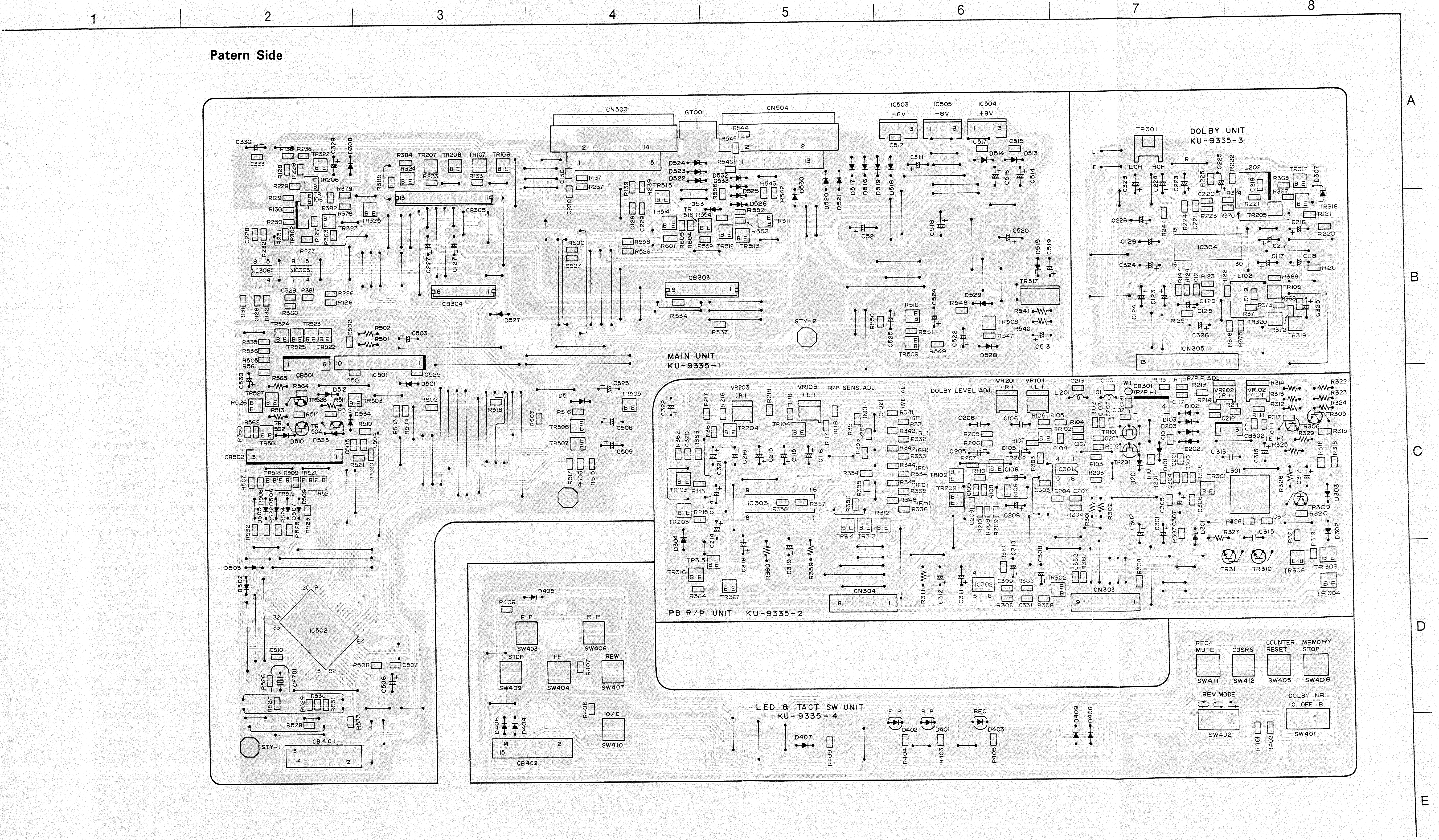
KU-9335 DECK UNIT ASS'Y	
1	MAIN UNIT
2	REC/PB UNIT
3	LED, CONTROL UNIT
4	DOLBY UNIT

Component Side

A B C D E


KU-9335-3
DOLBY UNIT
YG-H3
IC304
+8V
-8V
+6V
IC504
IC505
IC503
CN504
CN503
GT001
CB305
CB303
CB304
IC305
IC306
TP302
TP301
MAIN UNIT
KU-9335-1
YG-H3
IC501
CB501
CB502
R/P F.ADJ
CB301
CB302
DOLBY LEVEL ADJ
R/P SENS. ADJ
IC301
IC302
IC303
CN303
CN304
CN305
PB R/P UNIT
KU-9335-2
YG-H3
2229335004
DENON
R.P
F.P
REW
FF
STOP
O/C
SW406
SW403
SW407
SW404
SW409
SW410
CB402
IC502
CF701
CB401
STY-1
STY-2
CDSRS
MEMORY STOP
COUNTER RESET
REC/ MUTE
SW408
SW405
SW412
SW411
DOLBY NR B OFF C
REV MODE
SW401
SW402
LED & TACT SW UNIT
REC
R.P
F.P
D403
D401
D402
KU-9335-4
YG-H3

Patern Side


1
2
3
4
5
6
7
8
A
B
C
D
E
CN503
GT001
CN504
IC503 +6V
IC505 -8V
IC504 +8V
CB305
CB304
CB303
STY-2
MAIN UNIT
KU-9335-1
CB501
IC501
CB502
IC502
CF701
STY-1
CB401
TP301
DOLBY UNIT
KU-9335-3
LCH
RCH
IC304
CN305
DOLBY LEVEL ADJ.
R/P SENS. ADJ.
R/P F. ADJ
VR203 (R)
VR103 (L)
VR201 (R)
VR101 (L)
VR202 (R)
VR102 (L)
CB301 (R/P.H)
IC303
IC302
IC301
L301
CN304
CN303
PB R/P UNIT KU-9335-2
F.P
R.P
SW403
SW406
STOP
FF
REW
SW409
SW404
SW407
O/C
SW410
CB402
LED & TACT SW UNIT
KU-9335-4
REC/MUTE
CDSRS
COUNTER RESET
MEMORY STOP
SW411
SW412
SW405
SW408
REV MODE
SW402
DOLBY NR
C OFF B
SW401
REC
D401
D402
D403
D404
D405
D406
D407
D408
D409

CASSETTE DECK SECTION

NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4 W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR

RN: Type
14K: Shape and performance
2E: Power
182: Resistance
G: Allowable error
FR: Others

RD : Carbon Film RC : Composition RS : Metallic oxide Film RW : Winding RN : Metal film RK : Metal mixture RM : Carbon chip	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

※ Resistance

1 8 2 ⇨ 1800 ohm = 1.8 kohm
2: Indicates number of zeros after effective number
1 8: 2-digit effective number
- Units: ohm

1 R 2 ⇨ 1.2 ohm
2: 1-digit effective number.
1 R: 2-digit effective number, decimal point indicated by R.
- Units: ohm

※ Capacity (electrolyte only)

2 2 2 ⇨ 2200 µF
2: Indicates number of zeros after effective number.
2 2: 2-digit effective number.
- Units: µF

2 R 2 ⇨ 2.2 µF
2: 1-digit effective number.
2 R: 2-digit effective number, decimal point indicated by R.
- Units: µF

• Capacitors

Ex.: CE 04W 1H 2R2 M BP

CE: Type
04W: Shape and performance
1H: Dielectric strength
2R2: Capacity
M: Allowable error
BP: Others

CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

※ Capacity (except electrolyte)

2 2 2 ⇨ 2200 pF = 2200 µµF = 0.0022 µF
2 (More than 2): Indicates number of zeros after effective number.
2 2: 2-digit effective number.
- Units: µF

2 2 1 ⇨ 220 pF
1 (0 or 1): Indicates number of zeros after effective number.
2 2: 2-digit effective number.
- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

KU-9335 DECK UNIT ASS'Y PARTS LIST

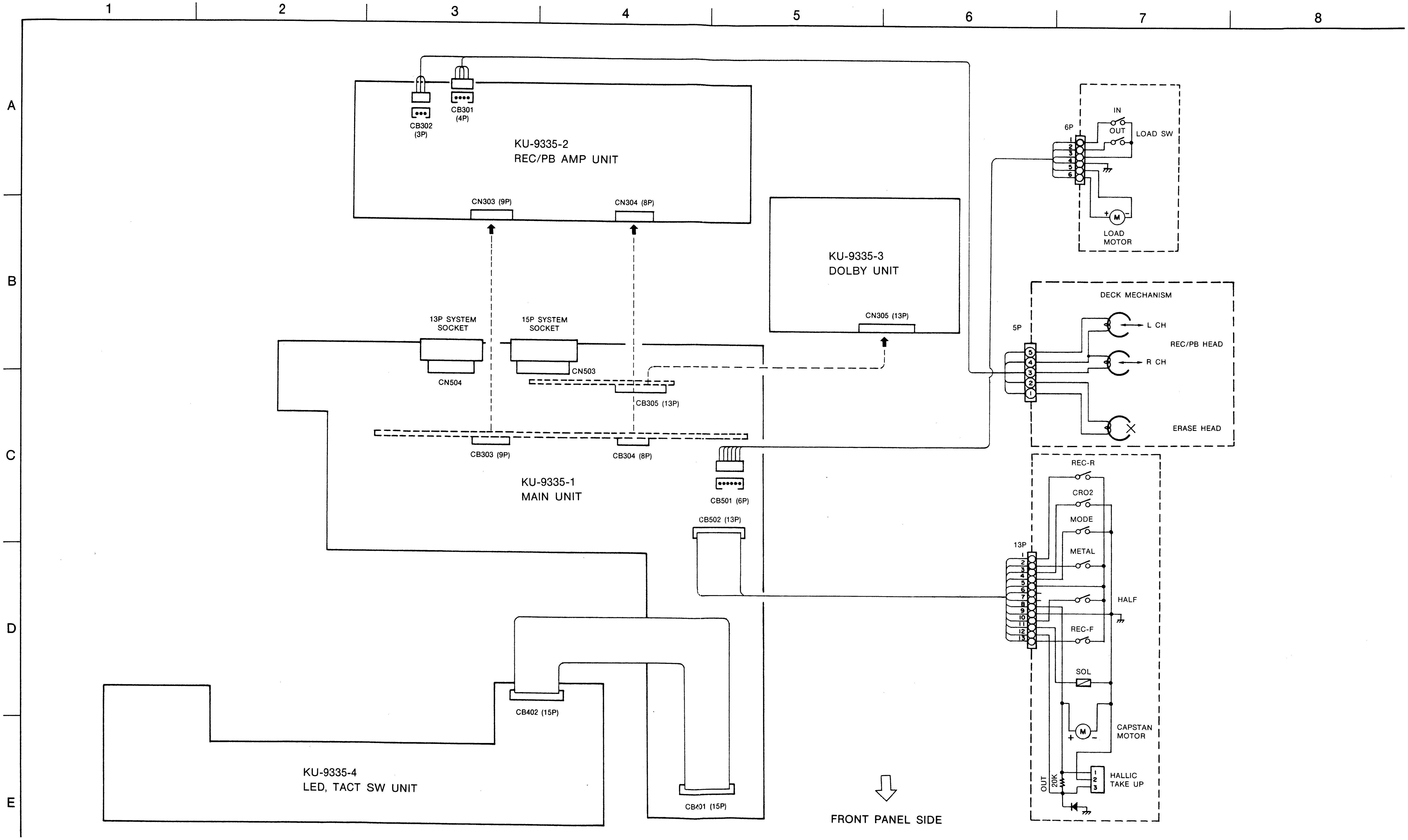
Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC301	263 0674 901	UPC4570G2-E2	
IC302	263 1022 905	LA2000M-TE-L	
IC303	263 0589 009	CXA1198AP	
IC304	262 1267 903	CXA1331M-T6	
IC305	263 0615 902	BA15218F(TAPE)	
IC306	263 0674 901	UPC4570G2-E2	
IC501	263 0402 005	BA6209	
IC502	262 1867 002	HD404729C29FS	µ-com
IC503	263 1010 001	BA178M06	Regulator +6V
IC504	263 1023 001	BA178M08	Regulator +8V
IC505	263 0511 006	NJM79M08FA	Regulator −8V
TR101	275 0042 905	FET2SK373(Y)	
TR102	271 0238 908	Transistor 2SA1037K(S/R)	
TR103	269 0066 902	Transistor DTC323TK	Built in Resistor
TR104	273 0384 900	Transistor 2SC2412K(S)	
TR106	273 0384 900	Transistor 2SC2412K(S)	
TR108	269 0066 902	Transistor DTC323TK	Built in Resistor
TR109	273 0384 900	Transistor 2SC2412K(S)	
TR201	275 0042 905	FET 2SK373(Y)	
TR202	271 0238 908	Transistor 2SA1037K(S/R)	
TR203	269 0066 902	Transistor DTC323TK	Built in Resistor
TR204	273 0384 900	Transistor 2SC2412K(S)	
TR206	273 0384 900	Transistor 2SC2412K(S)	
TR208	269 0066 902	Transistor DTC323TK	Built in Resistor
TR209	273 0384 900	Transistor 2SC2412K(S)	
TR301	269 0083 901	Transistor DTA114EK	Built in Resistor
TR302	273 0384 900	Transistor 2SC2412K(S)	
TR303,304	269 0082 902	Transistor DTC114EK	Built in Resistor
TR305,306	271 0192 905	Transistor 2SA933S(S)	
TR307,308	269 0082 902	Transistor DTC114EK	Built in Resistor
TR309	271 0192 905	Transistor 2SA933S(S)	
TR310,311	273 0303 910	Transistor 2SC1740S(S)	
TR312～314	269 0082 902	Transistor DTC114EK	Built in Resistor
TR315	269 0083 901	Transistor DTA114EK	Built in Resistor
TR316～318	269 0082 902	Transistor DTC114EK	Built in Resistor
TR322,323	273 0384 900	Transistor 2SC2412K(S)	
TR324	269 0083 901	Transistor DTA114EK	Built in Resistor
TR325	269 0054 901	Transistor DTC144EK	Built in Resistor
TR501	269 0088 906	Transistor DTC114TK	Built in Resistor
TR502	272 0025 907	Transistor 2SB562(C)	
TR503	269 0088 906	Transistor DTC114TK	Built in Resistor
TR504	272 0025 907	Transistor 2SB562(C)	
TR505	269 0054 901	Transistor DTC144EK	Built in Resistor
TR506,507	271 0238 908	Transistor 2SA1037K(S/R)	
TR509	269 0083 901	Transistor DTA114EK	Built in Resistor
TR510	273 0384 900	Transistor 2SC2412K(S)	
TR511	269 0054 901	Transistor DTC144EK	Built in Resistor
TR512	269 0082 902	Transistor DTC114EK	Built in Resistor
TR513	269 0054 901	Transistor DTC144EK	Built in Resistor
TR514	271 0238 908	Transistor 2SA1037K(S/R)	
TR515	269 0082 902	Transistor DTC114EK	Built in Resistor
TR516	271 0238 908	Transistor 2SA1037K(S/R)	
TR518～521	269 0083 901	Transistor DTA114EK	Built in Resistor
TR522,523	269 0054 901	Transistor DTC144EK	Built in Resistor
TR524,525	269 0055 900	Transistor DTA144EK	Built in Resistor
TR526	269 0088 906	Transistor DTC114TK	Built in Resistor
TR527	273 0384 900	Transistor 2SC2412K(S)	
TR528	272 0025 907	Transistor 2SB562(C)	
D101～103	276 0616 907	1SS252T-77	
D201～203	276 0616 907	1SS252T-77	
D301	276 0643 996	MTZJ5.6A T77	
D302,303	276 0616 907	1SS252T-77	
D304	276 0553 905	1SR35-200A	
D307	276 0644 937	MTZJ9.1A T77	
D308	276 0616 907	1SS252T-77	
D401,402	393 9409 902	SEL-2410G(TPI)	
D403	393 9401 900	SEL2210R(TP1)	
D404～409	276 0616 907	1SS252T-77	
D501	276 0635 904	MTZJ7.5CT77	
D502,503	276 0616 907	1SS252T-77	
D505～507, 509	276 0616 907	1SS252T-77	
D510	276 0553 905	1SR35-200A	
D511	276 0616 907	1SS252T-77	
D512	276 0553 905	1SR35-200A	
D513,514	276 0616 907	1SS252T-77	
D516～521	276 0553 905	1SR35-200A	
D522～526	276 0635 904	MTZJ7.5CT77	
D527	276 0553 905	1SR35-200A	
D529～531	276 0616 907	1SS252T-77	
D532	276 0635 904	MTZJ7.5CT77	
D533	276 0644 911	MTZJ7.5A T77	
D534,535	276 0616 907	1SS252T-77	
RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)			
R101	247 0015 940	Chip Carbon 2.2 Mohm 1/10W	RM73B--225J
R102	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R103	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R104	247 0013 926	Chip Carbon 270 kohm 1/10W	RM73B--274J
R105	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R106	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R107	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R108,109	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R110	247 0009 914	Chip Carbon 5.1 kohm 1/10W	RM73B--512J
R111	247 0013 968	Chip Carbon 390 kohm 1/10W	RM73B--394J
R113	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R114	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R115	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R116	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R117	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R118	247 0009 956	Chip Carbon 7.5 kohm 1/10W	RM73B--752J
R120,121	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R123	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R124	247 0006 988	Chip Carbon 560 ohm 1/10W	RM73B--561J
R125	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R126	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R127	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R128	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R129	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R130	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R131	247 0007 974	Chip Carbon 1.3 kohm 1/10W	RM73B--132J
R132	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R133	247 0008 915	Chip Carbon 2 kohm 1/10W	RM73B--202J
R137	247 0006 917	Chip Carbon 300 ohm 1/10W	RM73B--301J
R138	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R139	247 0002 966	Chip Carbon 10 ohm 1/10W	RM73B--100J
R147	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R201	247 0015 940	Chip Carbon 2.2 Mohm 1/10W	RM73B--225J
R202	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R203	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R204	247 0013 926	Chip Carbon 270 kohm 1/10W	RM73B--274J
R205	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R206	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R207	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J

Ref. No.	Part No.	Part Name	Remarks
R208,209	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R210	247 0009 914	Chip Carbon 5.1 kohm 1/10W	RM73B--512J
R211	247 0013 968	Chip Carbon 390 kohm 1/10W	RM73B--394J
R213	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R214	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R215	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R216	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R217	247 0009 927	Chip Carbon 5.6 kohm 1/10W	RM73B--562J
R218	247 0009 956	Chip Carbon 7.5 kohm 1/10W	RM73B--752J
R220	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R223	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R224	247 0006 988	Chip Carbon 560 ohm 1/10W	RM73B--561J
R225	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R226	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R227	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R228	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R229	247 0006 962	Chip Carbon 470 ohm 1/10W	RM73B--471J
R230	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R231	247 0007 974	Chip Carbon 1.3 kohm 1/10W	RM73B--132J
R232	247 0010 945	Chip Carbon 18 kohm 1/10W	RM73B--183J
R233	247 0008 915	Chip Carbon 2 kohm 1/10W	RM73B--202J
R237	247 0006 917	Chip Carbon 300 ohm 1/10W	RM73B--301J
R238	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R239	247 0002 966	Chip Carbon 10 ohm 1/10W	RM73B--100J
R247	247 0010 987	Chip Carbon 27 kohm 1/10W	RM73B--273J
R303	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R304	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R305	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R306	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R307	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R308	247 0012 943	Chip Carbon 120 kohm 1/10W	RM73B--124J
R309	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R310	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R315	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R316	247 0008 960	Chip Carbon 3.3 kohm 1/10W	RM73B--332J
R317	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R318	247 0008 960	Chip Carbon 3.3 kohm 1/10W	RM73B--332J
R319	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R320	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R321	247 0008 960	Chip Carbon 3.3 kohm 1/10W	RM73B--332J
R328	247 0010 903	Chip Carbon 12 kohm 1/10W	RM73B--123J
R331	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R332	247 0012 930	Chip Carbon 110 kohm 1/10W	RM73B--114J
R333	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R334	247 0012 930	Chip Carbon 110 kohm 1/10W	RM73B--114J
R335	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R336	247 0012 998	Chip Carbon 200 kohm 1/10W	RM73B--204J
R341	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R342	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R343	247 0011 960	Chip Carbon 56 kohm 1/10W	RM73B--563J
R344	247 0012 969	Chip Carbon 150 kohm 1/10W	RM73B--154J
R345	247 0011 957	Chip Carbon 51 kohm 1/10W	RM73B--513J
R346	247 0011 986	Chip Carbon 68 kohm 1/10W	RM73B--683J
R351	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R352	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R353	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R354,355	247 0012 914	Chip Carbon 91 kohm 1/10W	RM73B--913J
R356	247 0012 969	Chip Carbon 150 kohm 1/10W	RM73B--154J
R357	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R358	247 0010 974	Chip Carbon 24 kohm 1/10W	RM73B--243J
R361	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R362	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R364,365	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R370	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R374	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R375	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R376	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R378	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R379	247 0013 900	Chip Carbon 220 kohm 1/10W	RM73B--224J
R380	247 0011 973	Chip Carbon 62 kohm 1/10W	RM73B--623J
R381	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R382	247 0004 922	Chip Carbon 47 ohm 1/10W	RM73B--470J
R383	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R384	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R386	247 0012 901	Chip Carbon 82 kohm 1/10W	RM73B--823J
R387	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R401,402	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R403,404	247 0006 917	Chip Carbon 300 ohm 1/10W	RM73B--301J
R405	247 0006 988	Chip Carbon 560 ohm 1/10W	RM73B--561J
R406～409	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R503,504	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R505	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R506,507	247 0010 990	Chip Carbon 30 kohm 1/10W	RM73B--303J
R508,509	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R510	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R512	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R514～517	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R518	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R520,521	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R522～525	247 0008 928	Chip Carbon 2.2 kohm 1/10W	RM73B--222J
R526	247 0014 967	Chip Carbon 1 Mohm 1/10W	RM73B--105J
R527～533	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R534	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R535,536	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R537	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R542～546	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R548	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R549	247 0011 902	Chip Carbon 33 kohm 1/10W	RM73B--333J
R550	247 0007 945	Chip Carbon 1 kohm 1/10W	RM73B--102J
R551	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R552～554	247 0011 944	Chip Carbon 47 kohm 1/10W	RM73B--473J
R556	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R558,559	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R560	247 0013 942	Chip Carbon 330 kohm 1/10W	RM73B--334J
R561	247 0012 927	Chip Carbon 100 kohm 1/10W	RM73B--104J
R562	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R564	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R600,601	247 0010 961	Chip Carbon 22 kohm 1/10W	RM73B--223J
R602	247 0009 985	Chip Carbon 10 kohm 1/10W	RM73B--103J
R603～605	247 0009 901	Chip Carbon 4.7 kohm 1/10W	RM73B--472J
R606	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
⚠R326	241 2315 912	Fusible 10 ohm 1/4W(NB)	RD14B2E100GFRS
⚠R327	241 2313 985	Fusible 4.7 ohm 1/4W(NB)	RD14B2E4R7JFRS
⚠R359,360	241 2377 921	Carbon Film 82 ohm 1/4W(NB)	RD14B2E820JNBS
⚠R501,502	244 2050 904	Metal Oxide 22 ohm 1W(NB)	RS14B3A220JNBS (S)
VR101	211 6095 907	Semi Fixed Resistor 1 kohm	V06QB102
VR102	211 6095 952	Semi Fixed Resistor 100 kohm	V06QB104
VR103	211 6095 910	Semi Fixed Resistor 10 kohm	V06QB103
VR201	211 6095 907	Semi Fixed Resistor 1 kohm	V06QB102
VR202	211 6095 952	Semi Fixed Resistor 100 kohm	V06QB104
VR203	211 6095 910	Semi Fixed Resistor 10 kohm	V06QB103
CAPACITORS GROUP			
C101	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C102	257 0002 921	Chip Ceramic 10 pF/50V	CC73SL1H100D
C103	257 0006 943	Chip Ceramic 560 pF/50V	CC73SL1H561J
C104	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C105	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M
C106	255 1256 903	Plastic Film 0.0075 μ F/50V	CQ92M1H752J(MRZ)
C107	257 0003 904	Chip Ceramic 22 pF/50V	CC73SL1H220J
C108	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C109	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C111	257 0005 986	Chip Ceramic 330 pF/50V	CC73SL1H331J
C112	257 0006 969	Chip Ceramic 680 pF/50V	CC73SL1H681J
C113	257 0005 902	Chip Ceramic 150 pF/50V	CC73SL1H151J
C114,115	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C116	254 4260 935	Electrolytic 0.47 μ F/50V	CE04W1HR47M
C117,118	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M
C120,121	257 0009 924	Chip Ceramic 2200 pF/50V	CK73B1H222K
C123	254 4278 943	Electrolytic 0.56 μ F/50V	CE04W1HR56M
C124	254 4260 922	Electrolytic 0.33 μ F/50V	CE04W1HR33M
C125～127	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C128	257 0003 988	Chip Ceramic 47 pF/50V	CC73SL1H470J
C129	257 0006 927	Chip Ceramic 470 pF/50V	CC73SL1H471J
C130	257 0009 908	Chip Ceramic 1500 pF/50V	CK73B1H152K
C131	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C201	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C202	257 0002 921	Chip Ceramic 10 pF/50V	CC73SL1H100D
C203	257 0006 943	Chip Ceramic 560 pF/50V	CC73SL1H561J
C204	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C205	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M
C206	255 1256 903	Plastic Film 0.0075 μ F/50V	CQ92M1H752J(MRZ)
C207	257 0003 904	Chip Ceramic 22 pF/50V	CC73SL1H220J
C208	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C209	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C211	257 0005 986	Chip Ceramic 330 pF/50V	CC73SL1H331J
C212	257 0006 969	Chip Ceramic 680 pF/50V	CC73SL1H681J
C213	257 0005 902	Chip Ceramic 150 pF/50V	CC73SL1H151J
C214,215	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C216	254 4260 935	Electrolytic 0.47 μ F/50V	CE04W1HR47M
C217,218	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M
C220,221	257 0009 924	Chip Ceramic 2200 pF/50V	CK73B1H222K
C223	254 4278 943	Electrolytic 0.56 μ F/50V	CE04W1HR56M
C224	254 4260 922	Electrolytic 0.33 μ F/50V	CE04W1HR33M
C225～227	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C228	257 0003 988	Chip Ceramic 47 pF/50V	CC73SL1H470J
C229	257 0006 927	Chip Ceramic 470 pF/50V	CC73SL1H471J
C230	257 0009 908	Chip Ceramic 1500 pF/50V	CK73B1H152K
C301,302	254 4252 927	Electrolytic 47 μ F/10V	CE04W1A470M
C303	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C304	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C305	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C306	257 0008 983	Chip Ceramic 1000 pF/50V	CK73B1H102K
C307	254 4252 943	Electrolytic 220 μ F/10V	CE04W1A221M
C308	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M
C309	257 0009 924	Chip Ceramic 2200 pF/50V	CK73B1H222K
C310,311	254 4260 906	Electrolytic 0.1 μ F/50V	CE04W1H0R1M
C312	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M
C313	255 1271 904	Plastic Film 0.01 μ F/200V	CQ92M2D103J
C314	257 0009 982	Chip Ceramic 6800 pF/50V	CK73B1H682K
C315	256 1034 979	Metalized 0.1 μ F/50V	CF93A1H104J
C316	254 4256 952	Electrolytic 220 μ F/25V	CE04W1E221M
C317	254 4258 918	Electrolytic 10 μ F/35V	CE04W1V100M
C318,319	254 4252 930	Electrolytic 100 μ F/10V	CE04W1A101M
C320	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C322	254 4327 904	Electrolytic 1000 μ F/6.3V	CE04W0J102M
C323,324	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M
C326	254 4256 910	Electrolytic 22 μ F/25V	CE04W1E220M
C328	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C329	254 4252 901	Electrolytic 22 μ F/10V	CE04W1A220M
C330	254 4260 948	Electrolytic 1 μ F/50V	CE04W1H010M
C331	257 0005 944	Chip Ceramic 220 pF/50V	CC73SL1H221J
C332	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C333	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C501,502	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C503	254 4256 949	Electrolytic 100 μ F/25V	CE04W1E101M
C504,505	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C506	254 4327 904	Electrolytic 1000 μ F/6.3V	CE04W0J102M
C507	257 0012 966	Chip Ceramic 0.01 μ F/50V	CK73F1H103Z
C508	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C509	254 4260 951	Electrolytic 2.2 μ F/50V	CE04W1H2R2M
C510	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C511	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M
C512	257 1013 977	Chip Ceramic 0.068 μ F/25V	CK73B1E683K
C514	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M
C515	257 1013 977	Chip Ceramic 0.068 μ F/25V	CK73B1E683K
C516	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M
C517	257 1013 977	Chip Ceramic 0.068 μ F/25V	CK73B1E683K
C518	254 4256 790	Electrolytic 2200 μ F/25V	CE04W1E222MC
C520,521	254 4256 790	Electrolytic 2200 μ F/25V	CE04W1E222MC
C523	254 4254 909	Electrolytic 10 μ F/16V	CE04W1C100M
C524	254 4256 952	Electrolytic 220 μ F/25V	CE04W1E221M
C525	254 4258 905	Electrolytic 4.7 μ F/35V	CE04W1V4R7M
C526	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C527	257 0004 961	Chip Ceramic 100 pF/50V	CC73SL1H101J
C529	257 0014 935	Chip Ceramic 0.1 μ F/25V	CK73F1E104Z
C530	254 4250 929	Electrolytic 100 μ F/6.3V	CE04W0J101M

OTHER GROUP

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	—	(P.W.Board)		(1)
L101,201	235 0110 910	Inductor 15 mH		2
L301	231 9805 004	105 kHz Osc. Coil		1
CF701	399 0191 903	Ceramic Resonator	CST4.00MGW-TF01	1
SW401,402	212 1078 906	Slide Switch(1-3)		2
SW403～412	212 5604 907	Tact Switch		9
TP301	205 0355 033	3 P KR Conn. Base(L)		1
TP302	205 0343 032	3 P Conn. Base(KR-PH)		1
CB301	205 0343 045	4 P Conn. Base(KR-PH)		1
CB302	205 0343 032	3 P Conn. Base(KR-PH)		1
CB303	205 0535 015	9 P Conn. Base		1
CB304	205 0535 002	8 P Conn. Base		1
CB305	205 0707 005	13 P Conn. Base		1
CB401,402	205 0990 029	15 P FFC Conn. Base		2
CB501	205 0343 061	6 P Conn. Base(KR-PH)		1
CB502	205 0375 039	13 P Conn. Base(KR-PH)		1
CN303	205 0536 014	9 P Conn. Socket		1
CN304	205 0536 001	8 P Conn. Socket		1
CN305	205 0708 004	13 P Conn. Socket		1
CN503	204 8284 022	15 P System Socket		1
CN504	205 0730 056	13 P System Socket(BU)		1
GT001	412 9483 009	:Earth Plate		1
	205 0452 017	Style Pin		2
	009 9037 026	1 P Wire Ass'y		1

WIRING DIAGRAM


1
2
3
4
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6
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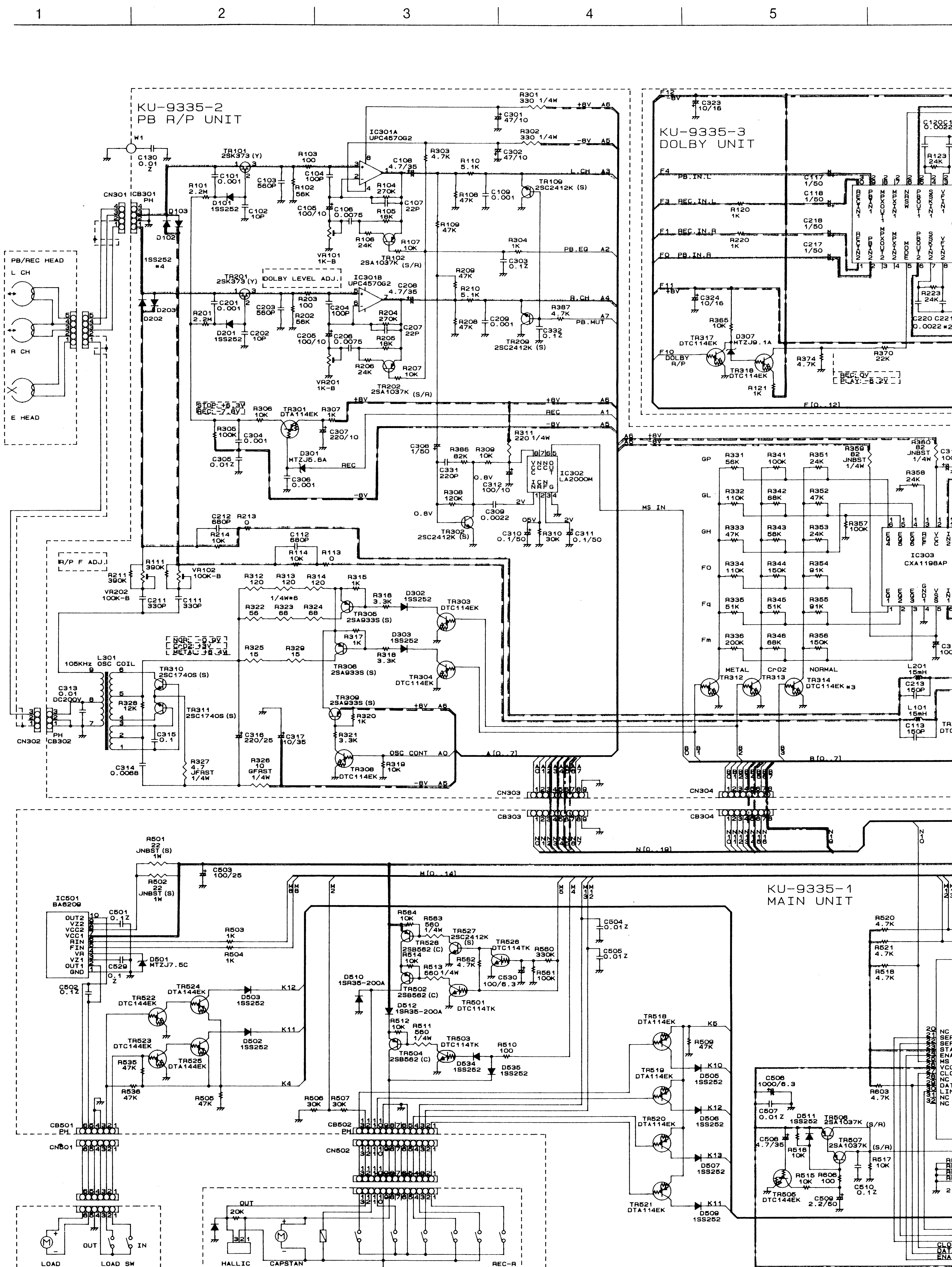
A
B
C
D
E
CB302 (3P)
CB301 (4P)
KU-9335-2
REC/PB AMP UNIT
CN303 (9P)
CN304 (8P)
KU-9335-3
DOLBY UNIT
CN305 (13P)
13P SYSTEM SOCKET
15P SYSTEM SOCKET
CN504
CN503
CB305 (13P)
CB303 (9P)
CB304 (8P)
KU-9335-1
MAIN UNIT
CB501 (6P)
CB502 (13P)
CB402 (15P)
KU-9335-4
LED, TACT SW UNIT
CB401 (15P)
FRONT PANEL SIDE
6P
IN
OUT
LOAD SW
LOAD MOTOR
M
DECK MECHANISM
5P
L CH
R CH
REC/PB HEAD
ERASE HEAD
13P
REC-R
CRO2
MODE
METAL
HALF
REC-F
SOL
CAPSTAN MOTOR
HALLIC TAKE UP
OUT
20K


1
2
3
4
5
KU-9335-2
PB R/P UNIT
KU-9335-3
DOLBY UNIT
KU-9335-1
MAIN UNIT
PB/REC HEAD
L CH
R CH
E HEAD
DOLBY LEVEL ADJ.
R/P F ADJ.
105KHz OSC COIL
IC301A UPC4570G2
IC301B UPC4570G2
IC302 LA2000M
IC303 CXA1198AP
IC501 BA6209
CN301
CN302
CN303
CN304
CB303
CB304
CB501
CN501
CB502
CN502
LOAD MOTOR
LOAD SW
HALLIC TAKE UP
CAPSTAN MOTOR
SOL
REC-F
HALF
METAL
MODE
CRO2
REC-R
METAL
CrO2
NORMAL

DENON 211

+13.8V LINE
+8V LINE
-8V LINE
+6V LINE
PB LINE
REC LINE

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manifacturer.

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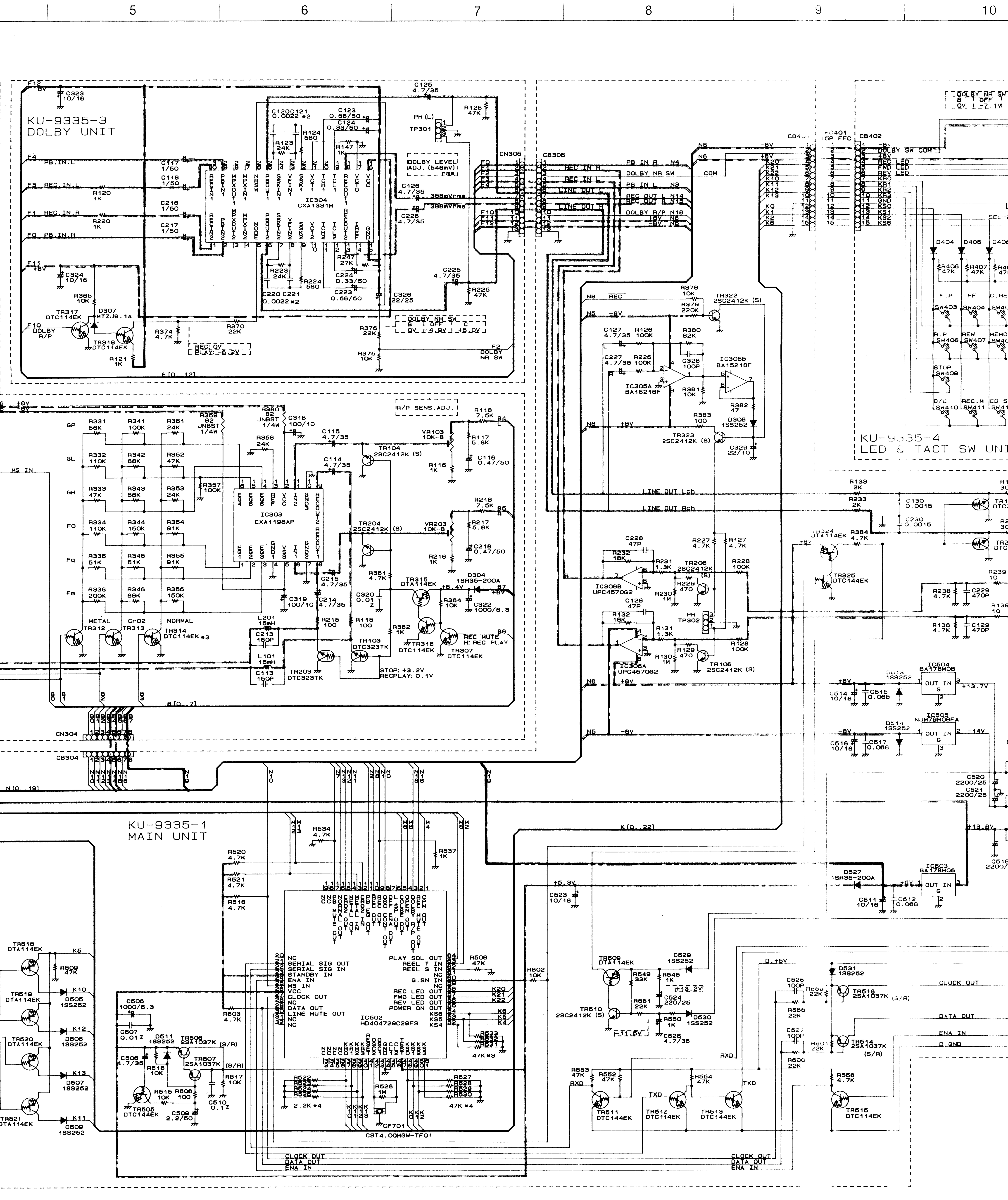
DO N

SCHEMATIC DIAGRAM


5
6
7
8
9
10
KU-9335-3
DOLBY UNIT
IC304
CXA1331M
DOLBY LEVEL ADJ. (548mV) rms
388mVrms
CN305
CB305
DOLBY NR SW
B OFF C
0V -4.9V +5.0V
REC 0V
PLAY -8.2V
R/P SENS. ADJ.
IC303
CXA1198AP
METAL
CrO2
NORMAL
TR312
TR313
TR314 DTC114EK *3
REC MUTE
H: REC PLAY
STOP: +3.2V
RECPLAY: 0.1V
CN304
CB304
KU-9335-1
MAIN UNIT
IC502
HD404729C29FS
CF701
CST4.00MGW-TF01
CLOCK OUT
DATA OUT
ENA IN
CB401
CB402
15P FFC
KU-9335-4
LED & TACT SW UNIT
IC305A
IC305B
BA15218F
IC306A
IC306B
UPC4570G2
LINE OUT Lch
LINE OUT Rch
IC504
BA178M06
IC505
NJM79M08FA
IC503
BA178M06
OUT IN G
+13.7V
-14V
+13.8V
TR509
TR510
TR511
TR512
TR513
TR514
TR515
TR516
RXD
TXD
D.GND

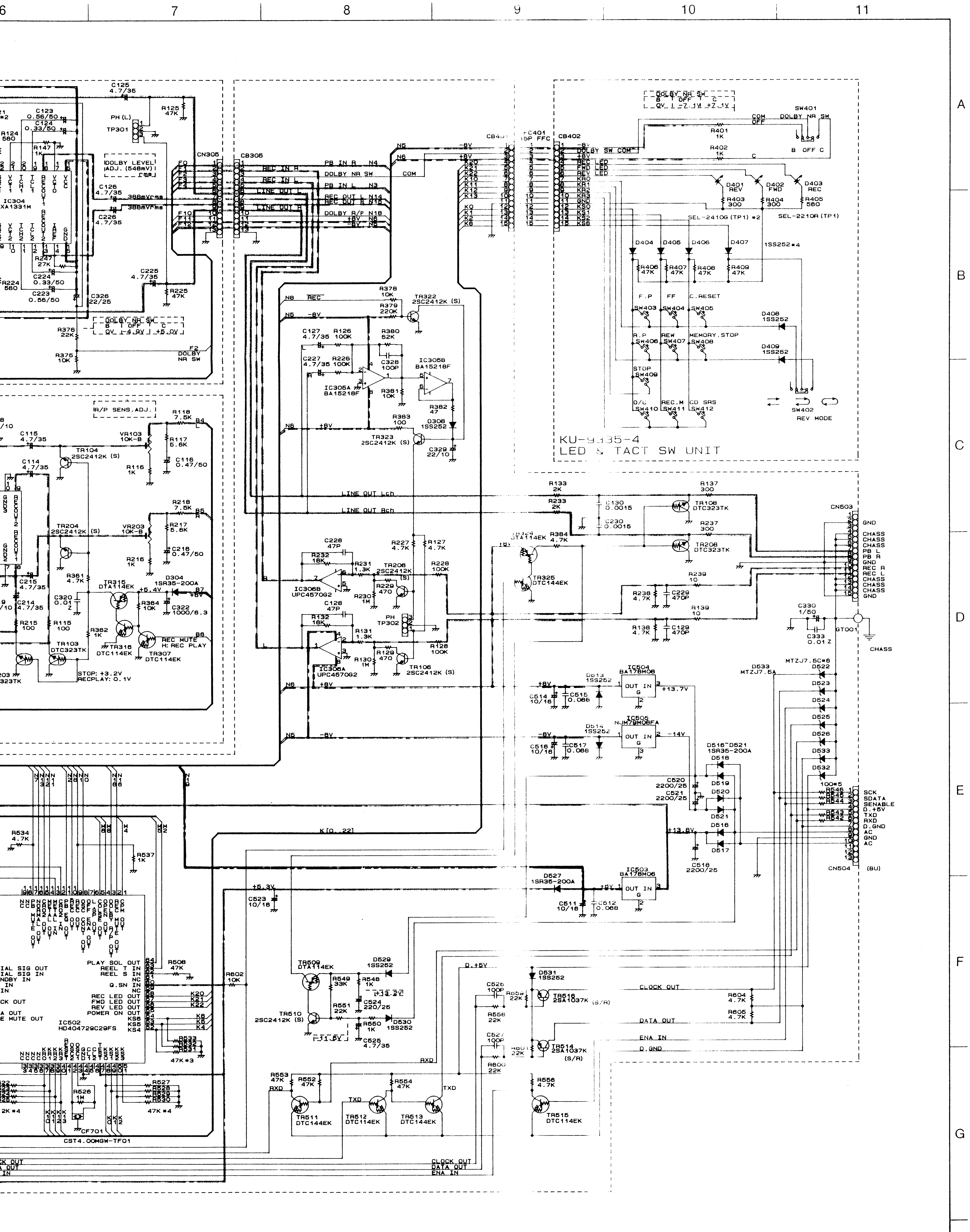
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NG:
arked with this symbol ⚠ ▨ have critical characteristics.
LY replacement parts recommended by the manifacturer.

NOTES
ALL RESISTANCE VALUES IN OHM
ALL CAPACITANCE VALUES IN MI
EACH VOLTAGE AND CURRENT A
CIRCUIT AND PARTS ARE SUBJEC

DIAGRAM


6
7
8
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10
11
A
B
C
D
E
F
G
H
C125 4.7/35
R125 47K
PH (L)
TP301
C123 0.56/50
C124 0.33/50
R124 560
R147 1K
DOLBY LEVEL ADJ. (548mV) rms
C126 4.7/35
388mVrms
IC304 XA1331M
C226 4.7/35
R247 27K
C224 0.33/50
R224 560
C223 0.56/50
C225 4.7/35
C326 22/25
R225 47K
DOLBY NR SW B OFF C 0V -4.9V +5.0V
R376 22K
R375 10K
F2 DOLBY NR SW
CN305
CB305
REC IN R
REC IN L
LINE OUT L
LINE OUT R
PB IN R N4
DOLBY NR SW
PB IN L N3
REC OUT L N14
REC OUT R N15
DOLBY R/P N18
+8V N6
-8V N5
COM
CB401
FC401 15P FFC
CB402
DOLBY SW COM
REC LED
FWD LED
REV LED
DOLBY NR SW B OFF C 0V -7.3V +7.4V
SW401 DOLBY NR SW
COM OFF
R401 1K
R402 1K
B OFF C
D401 REV
D402 FWD
D403 REC
R403 300
R404 300
R405 560
SEL-2410G (TP1) *2
SEL-2210R (TP1)
D404
D405
D406
D407
1SS252*4
R406 47K
R407 47K
R408 47K
R409 47K
F.P
FF
C.RESET
SW403
SW404
SW405
D408 1SS252
R.P
REW
MEMORY.STOP
SW406
SW407
SW408
D409 1SS252
STOP
SW409
O/C
REC.M
CD SRS
SW410
SW411
SW412
SW402 REV MODE
KU-9335-4
LED & TACT SW UNIT
R378 10K
R379 220K
TR322 2SC2412K (S)
C127 4.7/35
R126 100K
R380 62K
C227 4.7/35
R226 100K
C328 100P
IC305B BA15218F
IC305A BA15218F
R381 10K
R382 47
R383 100
D308 1SS252
TR323 2SC2412K (S)
C329 22/10
VR103 10K-B
R118 7.5K
R117 5.6K
C116 0.47/50
R116 1K
TR104 2SC2412K (S)
R/P SENS.ADJ.
C115 4.7/35
C114 4.7/35
R218 7.5K
R217 5.6K
VR203 10K-B
TR204 2SC2412K (S)
C216 0.47/50
R216 1K
R361 4.7K
TR315 DTA114EK
D304 1SR35-200A
+5.4V
C320 0.01
R364 10K
C322 1000/6.3
C215 4.7/35
C214 4.7/35
R215 100
R115 100
R362 1K
TR316 DTC114EK
TR307 DTC114EK
REC MUTE H: REC PLAY
TR103 DTC323TK
STOP: +3.2V RECPLAY: 0.1V
LINE OUT Lch
LINE OUT Rch
C228 47P
R232 18K
R231 1.3K
TR206 2SC2412K (S)
R227 4.7K
R127 4.7K
R228 100K
IC306B UPC4570G2
R229 470
R230 1M
C128 47P
R132 18K
PH TP302
R131 1.3K
R129 470
R130 1M
R128 100K
IC306A UPC4570G2
TR106 2SC2412K (S)
R133 2K
R233 2K
C130 0.0015
C230 0.0015
R137 300
TR106 DTC323TK
R237 300
TR208 DTC323TK
TR324 DTA114EK
R384 4.7K
TR325 DTC144EK
R239 10
R238 4.7K
C229 470P
R139 10
R138 4.7K
C129 470P
CN503
GND
CHASS
PB L
PB R
REC R
REC L
C330 1/50
C333 0.01
GT001
CHASS
D513 1SS252
IC504 BA178M08
+13.7V
C514 10/16
C515 0.068
D514 1SS252
IC505 NJM79M08FA
-14V
C516 10/16
C517 0.068
MTZJ7.5C*6
D522
D533 MTZJ7.5A
D523
D524
D525
D526
D533
D532
D516~D521 1SR35-200A
D518
C520 2200/25
C521 2200/25
D519
D520
D521
D516
D517
+13.8V
C518 2200/25
100*5
R546
R545
R544
R543
R542
SCK
SDATA
SENABLE
D.+5V
TXD
RXD
D.GND
AC
CN504
(BU)
D527 1SR35-200A
IC503 BA178M06
+5.3V
C523 10/16
C511 10/16
C512 0.068
K[0..22]
R534 4.7K
R537 1K
PLAY SOL OUT
REEL T IN
REEL S IN
Q.SN IN
REC LED OUT
FWD LED OUT
REV LED OUT
POWER ON OUT
IC502 HD404729C29FS
R508 47K
R602 10K
K20
K21
K22
K6
K5
K4
R533
R532
R531
47K*3
R527
R528
R529
R530
47K*4
R526 1M
CF701
CST4.00MGW-TF01
2K*4
TR509 DTA114EK
D529 1SS252
R549 33K
R548 1K
+13.2V
C524 220/25
R551 22K
TR510 2SC2412K (S)
R550 1K
D530 1SS252
-11.5V
C525 4.7/35
D.+5V
D531 1SS252
C526 100P
R559 22K
R558 22K
TR516 2SA1037K (S/R)
C527 100P
R601 22K
R600 22K
TR514 2SA1037K (S/R)
CLOCK OUT
DATA OUT
ENA IN
D.GND
R604 4.7K
R605 4.7K
RXD
TXD
R553 47K
R552 47K
R554 47K
TR511 DTC144EK
TR512 DTC114EK
TR513 DTC144EK
R556 4.7K
TR515 DTC114EK

ION:

e returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the ge current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is ive.

NING

OT return the unit to the customer until the problem is located and corrected.

NOTES

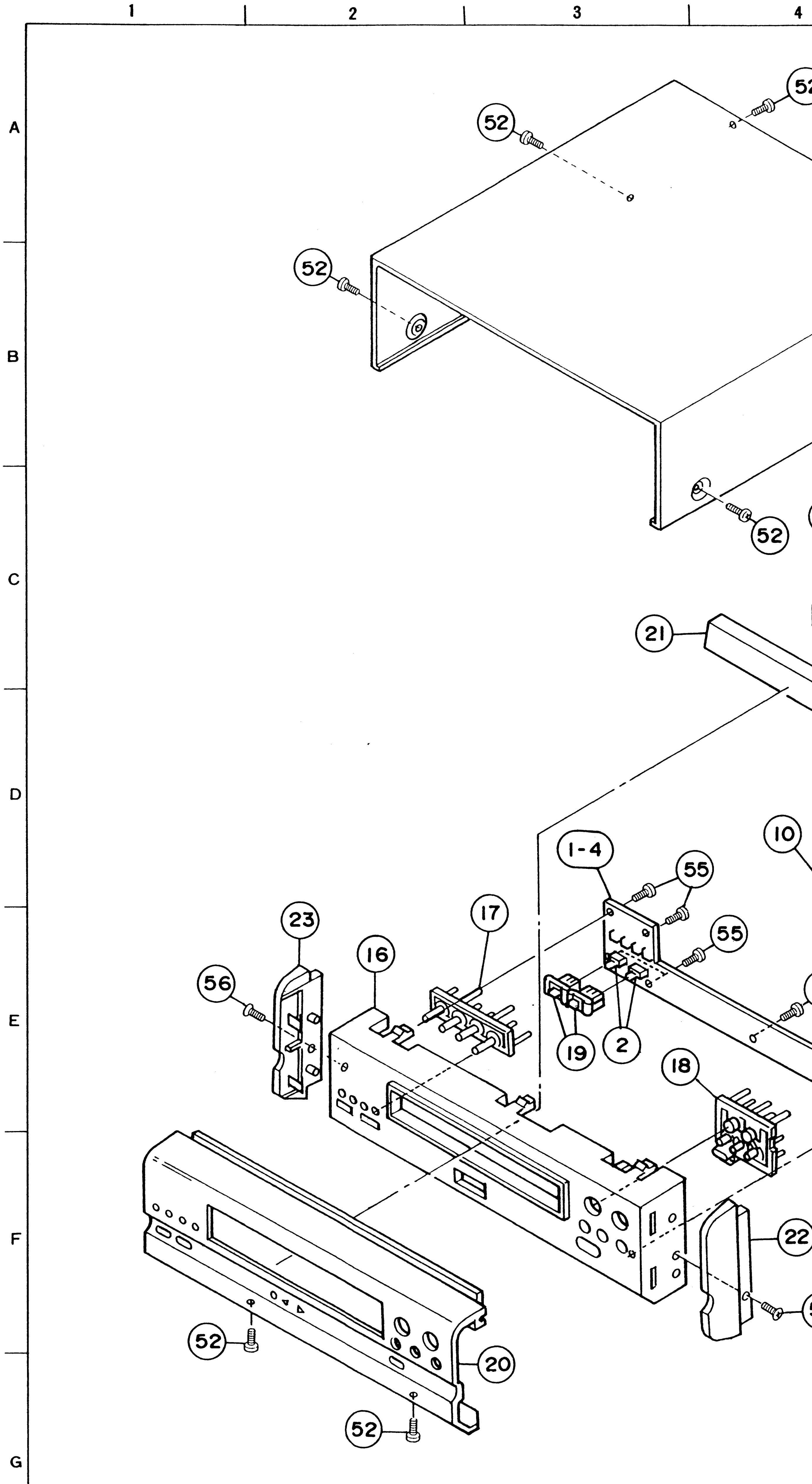
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

CASSETTE DECK SECTION

PARTS LIST OF UDR-77 EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	KU- 9335	Deck Unit Ass'y		1S
1-1	—	Main Unit		(1)
1-2	—	PB R/P Unit		(1)
1-3	—	Dolby Unit		(1)
1-4	—	LED & Tact SW Unit		(1)
2	212 1078 906	Slide Switch		2
3	254 4256 790	Chemicon 2200μF/25V	C518,520,521	3
4	205 0730 056	13 P System Socket(Bu)		1
5	204 8284 022	15 P System Socket		1
6	009 9056 007	15 P FFC		1
◉ 7	411 9115 316	:Main Chassis		1
8	104 0237 308	Foot Ass'y		4
◉ 9	105 9235 126	:Back Panel		1
10	449 9038 003	:Mecha Holder(DR)		1
◉ 11	338 9031 001	ACLM 574A CASS/L MECH		1
◉ 12	412 2814 028	Card Spacer(L=10)		2
13	445 0048 016	Cord Holder(L=50)		1
14	412 3470 102	Spring Plate		1
15	412 3685 104	P.W.B. Bracket		1
◉ 16	146 9348 302	Inner Panel		1
17	113 9322 108	4 G Button		1
18	113 9330 006	6 G Button		1
19	113 1548 003	Select Knob		2
◉ 20	144 9236 104	Front Panel Ass'y		1
21	146 9350 109	Loader Panel(DR)		1
22	146 9346 207	Side Plate(R)		1
23	146 9347 206	Side Plate(L)		1
◉ 24	102 9043 018	:Top Cover		1
★ 25	513 9390 013	:Rating Sheet		1
SCREWS				
51	473 7002 018	Tapping Screw(S) 3×8		12
52	473 7015 018	Tapping Screw(S) 3×8	Black	17
53	473 7015 005	Tapping Screw(S) 3×6	Black	3
54	473 7500 044	Tapping Screw(P) 3×8	Black	2
55	473 7505 007	Tapping Screw(P) 2.6×8		7
56	473 7009 008	FH.Tapping Screw(S) 3×6		2
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
71	505 0241 005	Cabinet Cover		1
72	503 9293 207	Cushion		1

EXPLODE

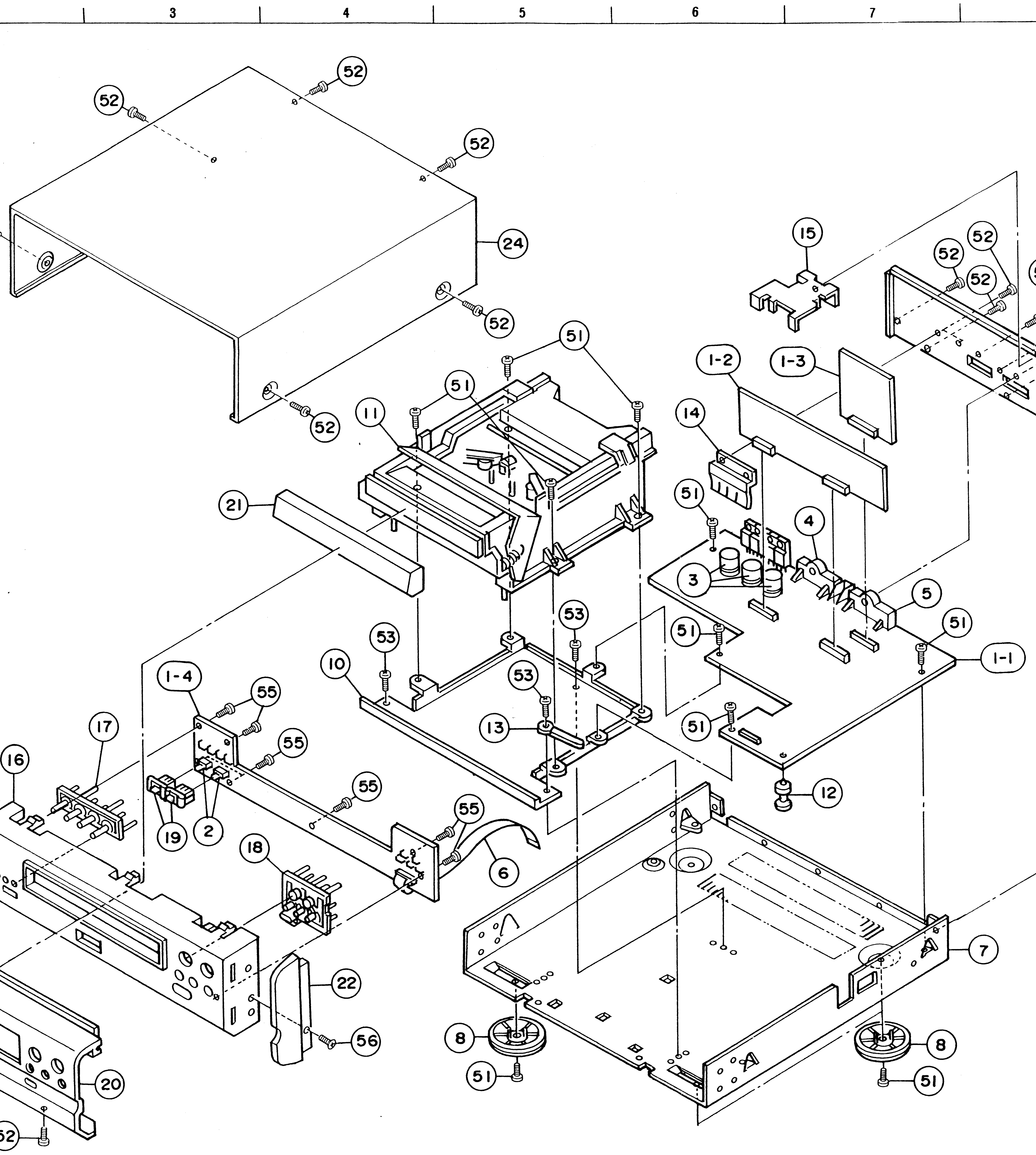


NOTE ON PARTS LIST

- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for supplin supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW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1-1
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1-4
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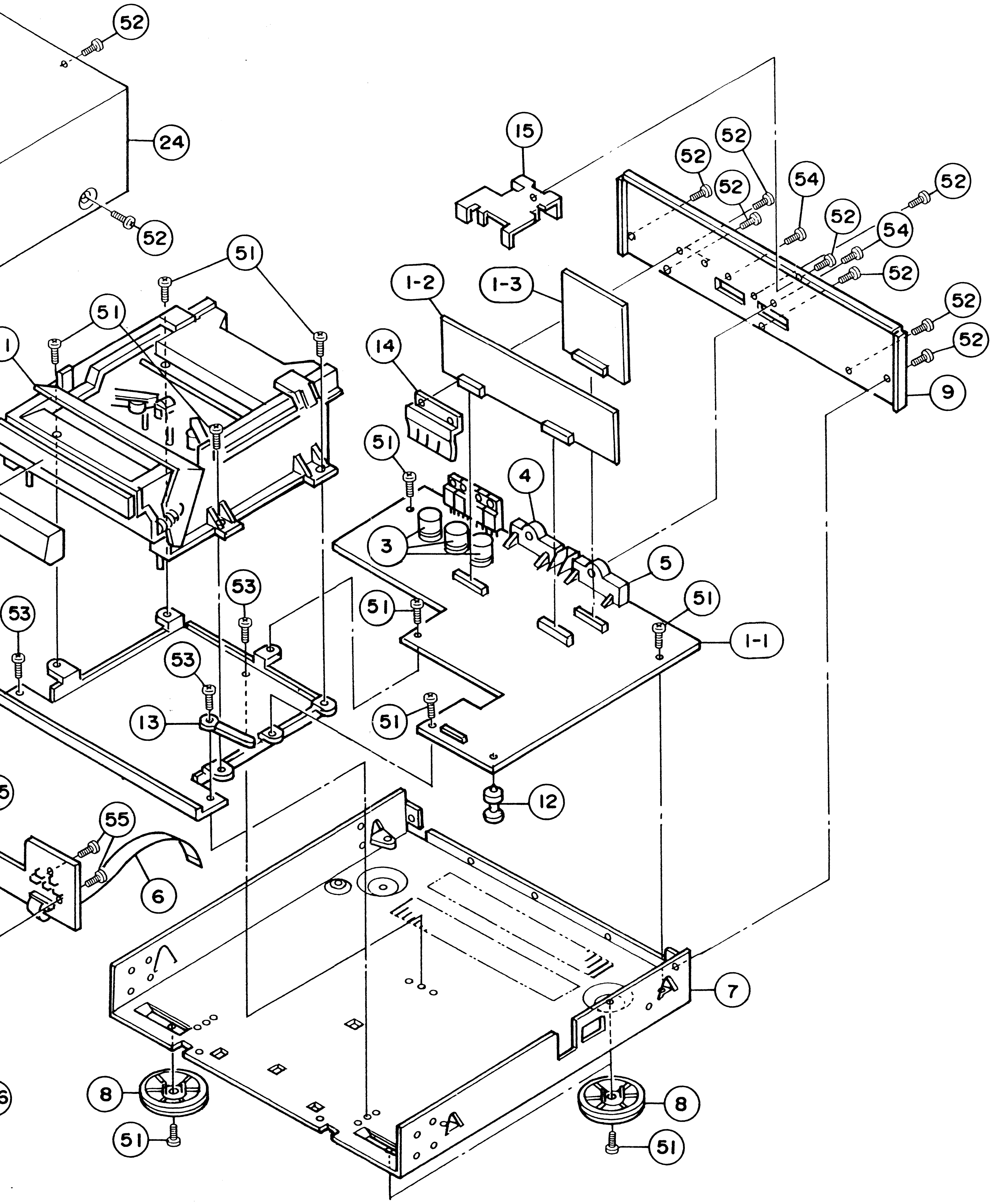
" are not always in stock and possibly to take a long period of time for suppling, or in some case
sed.
indicate "1" and "I" (i) to avoid mis-supplying.
its part number can not be supplied.
"★" is not illustrated in the exploded view.

▨ have critical characteristics.
ommended by the manufacturer.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4
3
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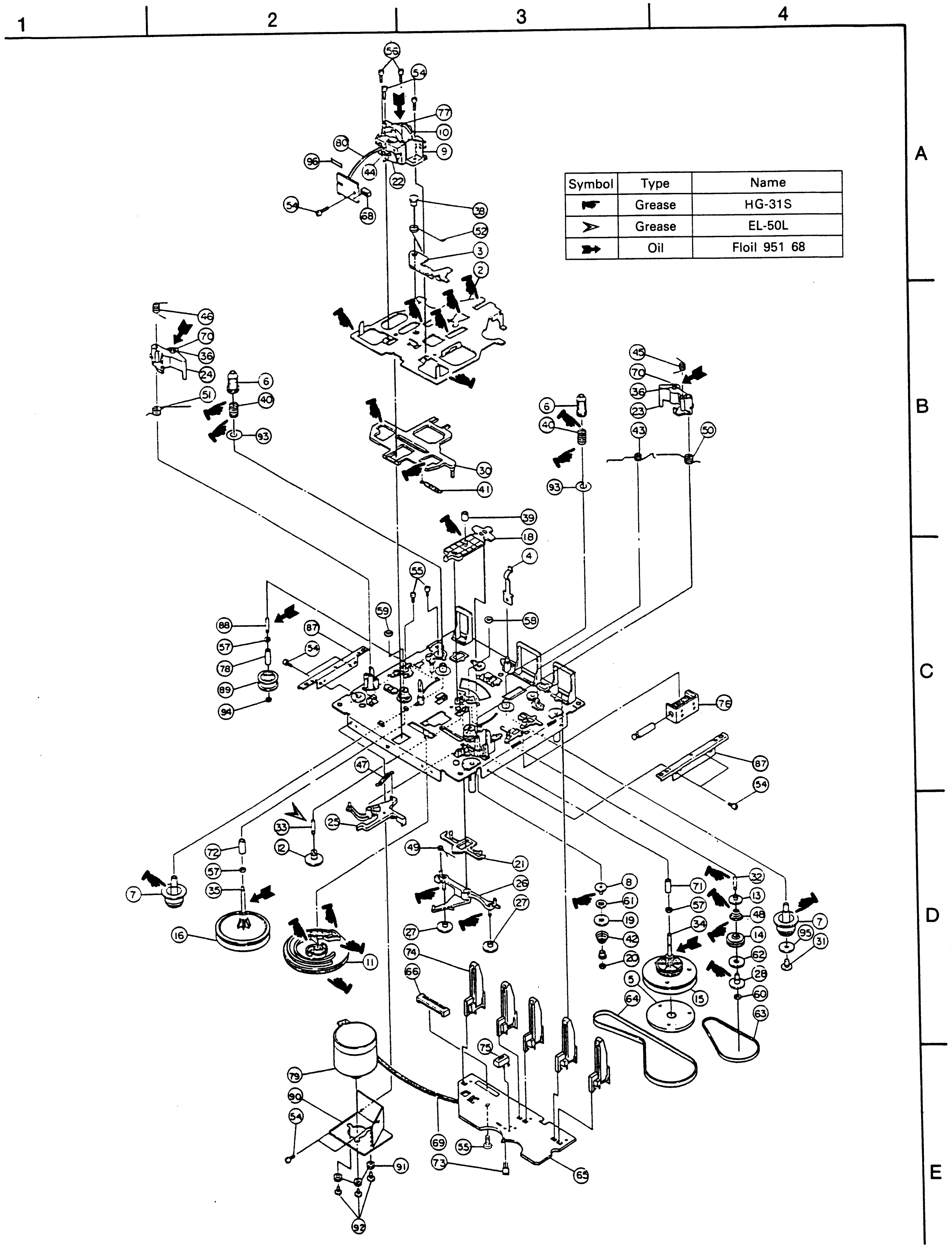
or in some case

EXPLODED VIEW



Symbol	Type	Name
☛	Grease	HG-31S
➤	Grease	EL-50L
➠	Oil	Floil 951 68

PARTS LIST OF CASSETTE MECHANISM (REC/PB)

No.	Part Name	Part Number	Description	Q'ty
1	CHASSIS MAIN	11112-00500BA		1
2	BASE HEAD	11105-00310BA		1
3	BASE SUB HEAD	11105-00420BA		1
4	PLATE SPRING	51299-12316XA		1
5	PLATE FLYWHEEL F	11143-00800BA		1
6	CHIP REEL	11110-00120AA		2
7	BASE REEL	11105-00330AA		2
8	BUSH P	11107-00220AA		1
9	BRACKET HEAD	11106-00650AA		1
10	GEAR HEAD	11128-00740AA		1
11	GEAR CAM	11128-00760AA		1
12	GEAR IDLER	11128-00780AA		1
13	BUSH C	11107-00230AA		1
14	PULLEY C	11145-00560AA		1
15	PULLEY F/W F	11145-00570AA		1
16	PULLEY F/W R	11145-00580AA		1
17	PULLEY MOTOR AD	11145-00720EB		1
18	ARM P	11102-01020AA		1
19	GEAR P	11128-00730AA		1
20	CAP P	11117-00090AA		1
21	LEVER BRAKE	11102-01030AA		1
22	GEAR DIR	11128-00750AA		1
23	ARM PINCH F	11102-01040AA		1
24	ARM PINCH R	11102-01050AA		1
25	ARM CAM LOCK	11102-01060AA		1
26	ARM RF	11102-01070AA		1
27	GEAR RF	11128-00770AA		2
28	CAP C	11117-00100AA		1
29	SPRING B/T R	51203-03098XB		1
30	LEVER AC	11134-01870AA		1
31	CAP MAGNET	11117-00120AA		1
32	SHAFT RF	11150-02260EA		1
33	SHAFT IDLER	11150-02270EA		1
34	SHAFT CAPSTAN F	11150-02291EA		1
35	SHAFT CAPSTAN R	11150-02301EA		1
36	SHAFT PINCH	11150-00130EA		2
37	PIN AZIMUTH	52017-00503XA		1
38	SHAFT BASE SUB	11150-02810EA		1
39	ROLLER P	11147-01780EA		1
40	SPRING B/T F	51203-03097XA		2
41	SPRING LEVER AC	51211-01026XA		1
42	SPRING P	51203-05106XB		1
43	SPRING BASE HEAD	51263-08046XA		1
44	SPRING DIR	51267-03036XA		1
45	SPRING PINCH F	51263-07056XA		1
46	SPRING PINCH R	51263-08056B		1
47	SPRING CAM LOCK	51211-03036XB		1
48	SPRING C	51203-06146XA		1
49	SPRING ARM RF	51264-03036XA		2
50	SPRING P/RETURN F	51263-03046XA		2
51	SPRING P/RETURN R	51263-03046XB		1
52	SPRING SUB	51272-10073BA		1
53	SCREW TAPPING	50032-16082EA	M1.6×8	2
54	SCREW TAPTITE	50262-20049EA	M2.0×4	4
55	SCREW EARTH	50432-20170EA		1
56	SCREW AZIMUTH	50432-20052BA		2
57	WASHER PLAIN	51000-02302BA	2.3×3.5×0.25	3
58	WASHER PLAIN	51010-01850AA	1.6×4×0.5	1
59	WASHER PLAIN	51010-01605AA	1.6×3.5×0.5	1
60	WASHER PLAIN	51010-01202AA	1.2×3.2×0.25	1
61	FELT P	11123-00312FA		1
62	FELT C	11123-00320FA		1
63	BELT SUB	51428-033AAPA	33.1×1.1×1.1	1
64	BELT M LA	51418-09905BA	99.0×3.2×0.5	1
65	PCB CONTROL 2103	11142-00270FA		1
66	CONNECTOR R/P	70219-30012LA	13P	1
67	SPRING EARTH	51201-02056XA		2
68	CONNECTOR HEAD	70219-30004EA	5P	1
69	WIRE MOTOR	70620-05002BM	2P-180	1
70	ROLLER PINCH	11147-00160FA		2
71	METAL FG F	51601-02206AA	CAPSTAN FWD	1
72	METAL FG R	51601-02020AA	CAPSTAN RVS	1
73	HALL IC	69801-99001ZA		1
74	SWITCH DETECT	70022-02055DA		5
75	SWITCH MODE	70018-04004AA		1
76	SOLENOID	79840-00009AA		1
77	HEAD R/P	71488-94044ZA	14 kHz	1
78	METAL CYLN SUB	51601-02011AB	PULLEY SUB	1
79	MOTOR	71650-12006AA	AD2F	1
80	WIRE HEAD(BRN)	70620-01501CA	AWG36	1
81	WIRE HEAD(BLU)	70620-01501DA	AWG36	1
82	WIRE HEAD(GRN)	70620-01501GA	AWG36	1
83	WIRE HEAD(ORA)	70620-01501QA	AWG36	1
84	WIRE HEAD(RED)	70620-01501RA	AWG36	1
85	WIRE HEAD(WHT)	70620-01501WA	AWG36	1
86	WIRE HEAD(YEL)	70620-01501YA	AWG36	1
87	BRKT SIDE	11106-00970AA		2
88	SHAFT SUB	11150-02970EA		1
89	PULLEY SUB	11145-01030AC		1
90	BRKT MOTOR TOP	11106-00980AA		1
91	CUSHION MOTOR	11115-00020FA		3
92	SCREW M	50062-26041EA	MOTOR	3
93	WASHER B/T	51000-06025XA	6.0×11×0.25	2
94	WASHER PLAIN	51000-01602BA	1.6×3.2×0.25	1
95	PLATE MAGNET	11143-00970AA		1
96	WEDGE	59893-06200AB		1
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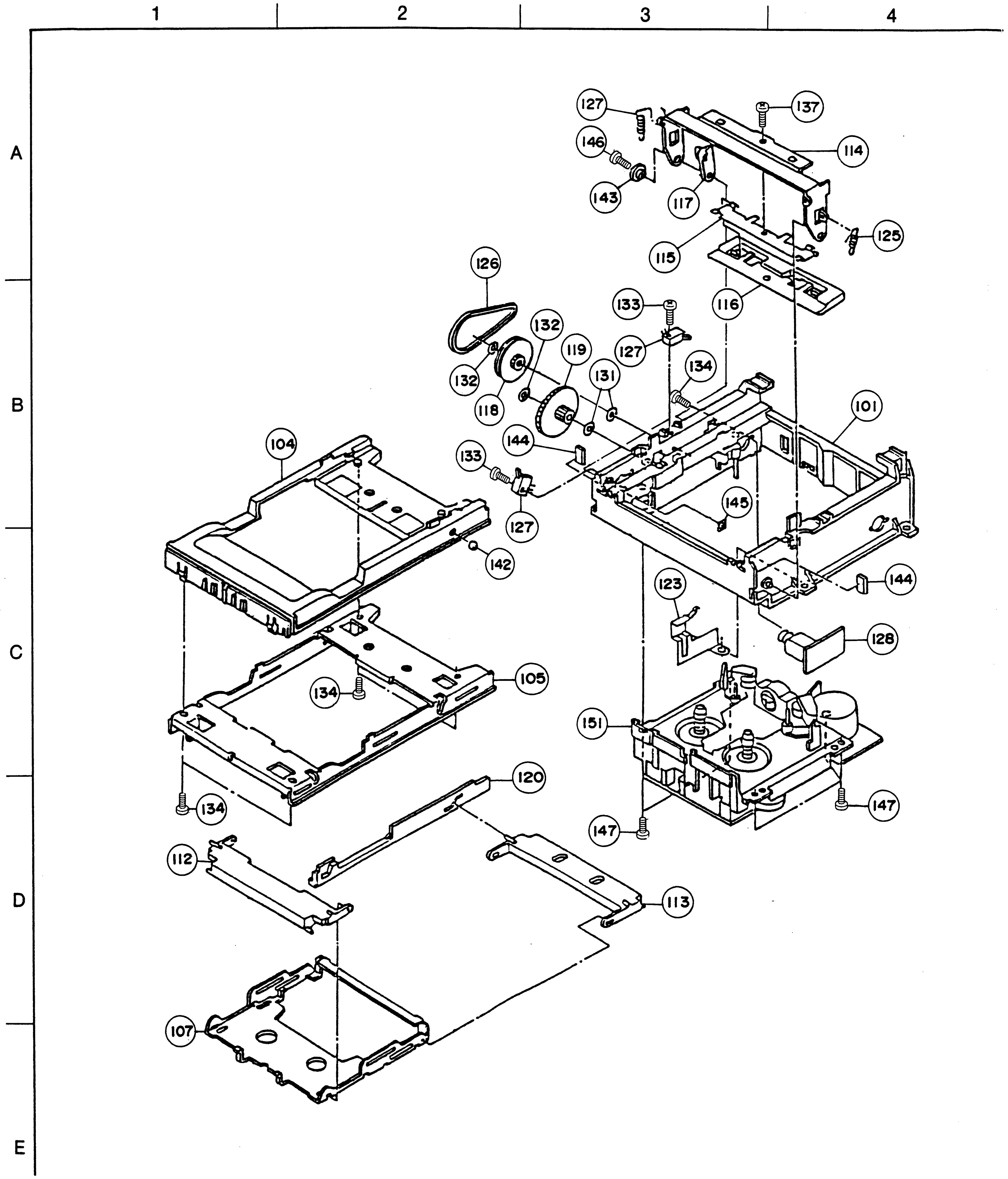
CASSETTE DECK SECTION

CASSETTE MECHANISM: ACLM-574A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CASSETTE MECHANISM ACLM-574A PARTS LIST

No.	Parts No.	Description	Q'ty	
101	A1A001A	Flame Assy	1	
104	A1G002A	Tray	1	
105	A1P001A	Chassis	1	
107	A1A002B	Holder Assy	1	
112	A1G004A	Arm A	1	
113	A1G029A	Arm C	1	
114	A1P003A	Arm	1	
115	A1P004A	Retainer	1	
116	A1G006A	Plate	1	
117	A1G007A	Arm	1	
118	A1G008A	Pulley	1	
119	A1G009A	Gear	1	
120	A1G010A	Gear Luck	1	
123	A1P005A	Plate	1	
124	A1S001A	Spring A	1	
125	A1S002B	Spring B	1	
126	A1G011A	Belt	1	
127	S01W181	Switch MSS-8B	2	
128	A1A574A	Motor PCB Assy	1	W/6P Connector Pin
131	P21W405	PSW 2.1×4×0.5	2	
132	P21C405	PSW 2.1×4×0.5C	2	
133	N20B008	B Tite Screw M2×8BK	2	
134	N26B005	B Tite Screw M2.6×5BK	4	
135	M20N004	Screw M2×4	1	
137	S14N002	Screw M1.4×2BK	1	
142	A1H006A	Boul ϕ5	1	
143	A1H002A	Bush	1	
144	A1G015A	Buffer	2	
145	A1P007A	Nut	1	
146	S17N010	Screw M1.7×10BK	1	
147	M30P006	P Tite Screw 3×6BK	5	
148	A1G026A	Connector 5P-3P 4P PH	1	For Deck Head
149	A1G027A	Connector 13P-13P PH	1	For Deck
150	A1G028A	Connector 6P-6P PH	1	For Loader
151	ADR2174TB	Cassette Mechanism	1	